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ARMOR IN ATOMIC WAR

Brigadier General John R. Beishline, *USA*
Assistant Division Commander, 3d Armored Division

The views expressed in this article are the author's and are not necessarily those of the Department of the Army or the Command and General Staff College.—The Editor.

THE terrain of the Korean conflict was usually characterized by abrupt, knife-like mountains or ridges which channelized the long, narrow valleys. The rice paddies which covered the valleys would not ordinarily support vehicles.

Good tank terrain is generally characterized by gently rolling hills and good, firm ground. Therefore, armor could not be utilized to the maximum extent of its inherent capabilities on Korean terrain.

Geographically speaking, no one can predict with accuracy where any future combat may be fought. Therefore, it is of vital importance that the potentialities and capabilities of armor be evaluated in terms of possible future areas of combat.

Armor is in the vanguard of new developments in the field of modern warfare. This is of particular importance when one considers the potentialities and possibilities of atomic warfare on the battlefield. Some of these developments will have a great impact on the armored division, and will be examined briefly in this connection.

The American armored division may be employed in most types of ground combat. Because of its predominant tank strength, it is particularly suitable for offensive operations involving penetration, envelopment, pursuit, and exploitation. It also may be used with great success in the destruction of enemy armor and in delaying action. It is a highly mobile force which possesses great striking power.

Through its ability to maneuver and concentrate its fire power and physical mass against the most vulnerable portions of enemy defenses, armor is capable of decisively and rapidly taking its objectives. Its great speed denies the enemy time to meet the attack.

The armored division contains the combat arms to make it a powerful fighting machine, and the service units necessary to support it. Hence, it is self-contained and is capable of independent action.

The term "armor" is generally conceived to include tank units, armored infantry, armored artillery, and armored engineers. Varying amounts of each are integrated into units to form the modern armored division.

In the American armored division, we usually find three combat commands and one artillery command. A combat command is a unit of approximately regimental size capable of great flexibility since the battalions of the division can be at-

We usually consider the tank to be the weapon most capable of dealing with enemy armor. If an all-out war should come, American armor gives promise of being extremely effective in tactical atomic warfare

tached or detached with ease. The tanks and armored infantry battalion are the basic units and are administratively and logistically self-supporting.

The three combat commands possess approximately 350 tanks, while the artillery command possesses a total of approximately 70 self-propelled artillery pieces. Additionally, in its combat elements, the American armored division has 4 armored infantry battalions possessing a total of about 250 armored personnel carriers; and it also has 4 armored-combat-engineer companies utilizing approximately 25 armored vehicles. A reconnaissance battalion is supplied to provide information and security in operations.

Soviet Armor

It may be of interest to examine briefly the current status of armor within the armed forces of the Soviet Union.

The Soviets have come a long way since the horse-drawn, poorly led, and poorly trained forces of early World War II. They have a deep understanding of the proper position of armor in their military forces. It is largely based on World War II lessons, with a good conception of their requirements in any future war in which they might become involved.

This is highlighted by the fact that, following World War II, over half of the Soviet's infantry divisions were inactivated, whereas only a few of its armored and mechanized divisions were demobilized. The Soviets now have several mechanized field armies of approximately 65,000 men and 1,000 tanks each.

By way of comparison with the American armored division, the Soviet tank division contains about 280 tanks and 40 self-propelled artillery pieces. Thus, it is somewhat smaller than the American armored division. From the foregoing, it can be readily seen that in any future war the Communists intend to use armor in vast numbers.

If such an all-out war should come, how can we best destroy the thousands of Communist tanks which will be thrown at our forces in Europe? What is the best antitank weapon?

The one hope of coping with the problem is American armor. Various weapons have been tried to meet the tank threat, such as mines, bazookas, and several types of self-propelled antitank guns. It may be recalled that in World War II, a tank-destroyer command was established and subsequently abolished. However, none of these efforts have been totally satisfactory, and we usually consider the tank to be the weapon most capable of dealing with enemy armor.

Korean Conflict

Perhaps armored action in the Korean conflict did not receive the front-page recognition which it did in World War II. Nonetheless, in Korea, the tank again proved its great value, even though there were no sizable armored units committed to action. The adverse terrain and other features of Korea established it as poor tank country; but commanders at all levels lauded the accomplishments of our tank units. Armored action in Korea demonstrated that the Army's thinking in this vital area was basically sound; and many valuable lessons in armor were developed from our Korean experience.

The technical characteristics of American armor are being constantly reviewed

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and improved to provide greater mobility and impact. Less ground pressure, improved suspension systems and engines, and a higher degree of maneuverability enable our new tanks to move at high speed over rough terrain. The development of superior guns and ammunition, together with an improved fire control system, permit our armor accurately and effectively to engage the enemy at increased ranges and over greater lateral dispersion.

The Tank Family

For more effective and efficient development and employment of armor, a decision was reached to classify our tanks into a "family" of three tanks based primarily upon the caliber of gun which each carries. This classification resulted in a light-gun tank, a medium-gun tank, and a heavy-gun tank. Each member of the family will be discussed briefly in turn.

When the Korean conflict exploded on 25 June 1950, the American Army had no light tank in production. Such a tank is required primarily for reconnaissance and security missions. It must possess relatively light armor and weight, so that it may have great mobility and maneuverability. It must also have a gun of sufficient caliber to enable limited fighting for information and survival.

The new *M-41* light-gun tank is now in production, and meets these requirements. It has a weight of 26 tons and mounts a highly effective 76-mm gun.

Two medium-gun tanks have been developed since World War II. Both are now coming off the assembly lines and are going to troop units. Experiences with the German 88-mm gun of World War II, as well as the necessity for meeting the Communist 100-mm gun, undoubtedly influenced the development of these tanks.

The medium-gun tanks can be considered as the work horses of the armored division. They must be capable of driving deep into the enemy's vitals after being thrust through a penetration on a relatively narrow front. Further, they must be capable of swift pursuit and exploitation of these deep penetrations. They also must be capable of exploiting enemy rear areas by destroying supply centers, cutting main supply lines, and taking command of key terrain features. Both of our medium tanks, which are currently in production, meet these requirements to a high degree. Both are provided with high-velocity guns which are controlled by fire control systems which greatly increase the probability of a first-round hit. A higher rate of fire is possible because an automatic compensator restores the aim of the gun after each round, so that recoil adjustments need not be made manually.

Targets can be spotted very quickly through a greatly improved field of vision. Armor protection has been improved and both tanks are in the 45- to 50-ton weight class.

The first of these two medium tanks is called the *Patton M-47*, medium-gun tank. It weighs about 48½ tons, and is powered by an 810-horsepower, air-cooled, *V-12* engine with an Allison combination hydraulic and mechanical cross-drive transmission. It is 28 feet long and 10 feet high, with a width of 11½ feet. Its armament includes a 90-mm high-velocity gun, as well as two .30-caliber machine guns and one .50-caliber machine gun. It is served by a crew of five.

The *Patton M-48* tank, is thought by many to be the finest medium-gun tank in the world. A new design gives it a low silhouette; and its sloping, elliptical sides and turret make it very difficult for an enemy shell to penetrate. It incorporates a simplified and more effective hydraulic turret-control mechanism, and there is more room in the turret both for crew and for ammunition.

An important feature of this tank is the "quick-change" gun tube or barrel,

which permits removal and replacement in the field. Another innovation is the wider track, which makes it easier to negotiate mud and swampy ground.

The power steering of the light *M-41* and the medium *M-46*, *M-47*, and *M-48*, makes them as easy to drive as a modern automobile. All three mediums are powered by an 810-horsepower *V-12* air-cooled engine and cross-drive transmission.

The heavy-gun tank which has been developed by the Army is probably the result of our respect for the *Josef Stalin* series of Soviet tanks.

The medium-gun tanks are considered the work horses of the American armored division. The *Patton M-48*, above, is considered to be the finest medium tank in the world today.

Naturally, our heavy-gun tank program has not had as high a priority as our light and medium programs. However, the Army is fully conscious of the need for such a tank in moderate numbers. These tanks are now in production.

Complementing this family is the armored-infantry personnel carrier, which has the mission of safely delivering the infantry soldiers—who form an integral part of the highly mobile armored team—to the objective. It also lends itself to exploitation and reconnaissance missions.

Armor gives promise of being extremely effective in tactical atomic warfare. Fortunately, such a battleground has not yet been faced, but armor appears to have the ability to operate against an enemy equipped with atomic weapons, or to exploit the use of our own atomic weapons.

Because of its superior communications, mobility, and flexibility, an armored division can deploy over a wide area without loss of control and military effectiveness. For the same reasons, it can concentrate and converge rapidly, efficiently, and completely, ready to fight with a maximum of combat effectiveness. Furthermore, the protection against heat and radiation which is afforded by the armor of the tank and the personnel carrier is of great importance on an atomic warfare battlefield. This is also true of the mobile self-propelled artillery which can accompany the armored division wherever it goes in order to render the close, effective

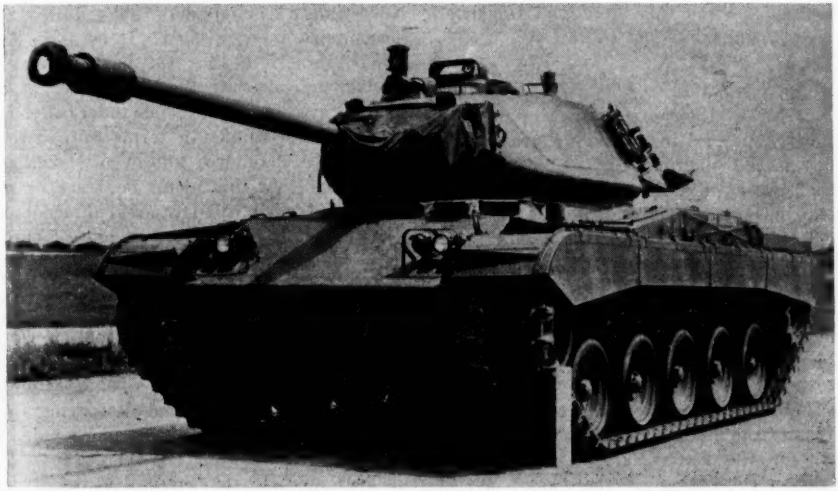
artillery support which is essential in modern combat. Armor probably will be able to enter immediately into an area which we ourselves have subjected to atomic attack, and thus exploit to the maximum the effects of our atomic weapons.

It is of particular importance to note that one of the greatest advances in our tank program is the increased standardization which our current program entails. This will result in great savings to the taxpayer. For example, during World War II our medium tanks were powered by six types of engines. Our self-propelled artillery vehicles were powered by yet another engine. It is not difficult to imagine the cost and difficulty inherent in the complex problems of supply, maintenance, and training under such a tank program.

Most people in the United States realize that we will be in a precarious position if we attempt to meet any future Communist aggression on the basis of man against man and masses against masses. We can never defeat heavily populated nations such as China and the Soviet Union on a body-for-body basis. The disparity in our manpower resources is far too great.

On the other hand, we do have the greatest productive capacity and mechanical know-how of any nation. It is to our interest to capitalize on resources and take maximum advantage of these factors.

Most Americans who have driven motor vehicles are quickly at home with a tank from the point of view of both maintenance and operation. In this connection, it is pointed out that there are more than 52 million motor vehicles registered in the United States.



The *M-41* light-gun tank, above, is required primarily for reconnaissance and security missions. This armored vehicle weighs 26 tons and mounts a highly effective 76-mm gun.

As a result of our industrial position, superior American armor is being produced. Our tanks are better designed, harder hitting, more maneuverable; and chances for a first-round hit are better than ever before.

Tanks—which can be produced by the United States in any required variety or numbers—are the backbone of our modern armor program.

THE DEFENSE OF TOMORROW?

Lieutenant Colonel Clarence C. DeReus, *Infantry*
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The views expressed in this article are the author's and are not necessarily those of the Department of the Army or the Command and General Staff College.—The Editor.

ONE of the more controversial operations visualized in military operations today is the planning for, and conduct of, the mobile defense. Little confidence is expressed in this form of defense by many officers, since for years the military has emphasized in training the ideal form of position defense. This "ideal form" is presented as being one of restricted frontages, mutual support at all levels, and emphasizes defense of a given line at all costs.

Let us examine the concept of mobile defense from the viewpoints of what, when, where, who, and why. We will dispense with a discussion of the "how" aspect, since that, in itself, will become involved in the applications of principles, and will be discussed at some length in a consideration of the other factors listed.

What Is Mobile Defense?

Mobile defense has been defined as "a type of defense in which the bulk of the forces are held in reserve for the purpose of counterattack." This definition was obviously designed to apply at the division level—either armored or infantry. It does not necessarily apply at corps, and certainly not at the army level. To describe mobile defense, one must always consider the intent of the commander. His desires must be examined from a viewpoint of whether or not he intends to defend a given line. Will he accept larger than normal penetrations without feeling that subordinate commanders have failed to accomplish their mission? It becomes obvious, it is felt, that the basic *what* of mobile defense may then be defined as a mental attitude of the commander. A commander who thinks in terms of a given line to be defended, and who visualizes defending that line along its trace or in a comparatively shallow area adjacent to the line, has not adopted mobile defense. Regardless of how he has disposed his forces, he mentally has turned to another method of defense. If a mental willingness exists to accept penetrations of considerable depth by the enemy for the purpose of counterattacking with a strong, highly mobile reserve and destroying the enemy, mobile defense has been adopted.

In the same manner, if the commander is ever alert to the possibilities of striking the enemy while he is in a disadvantageous position forward of friendly positions, even though his over-all mission remains one of defense, he has adopted the mobile defense. Mobile defense does not depend, then, solely on the disposition of forces, but equally on the mental attitude of the commander and his concept of conduct of the defense.

When Mobile Defense?

From the broader aspects, our national policy has been—and will undoubtedly continue to be—one of waiting and a limited mobilization, with emphasis on economic stability and mobilization planning. This, translated into weapons and troops, does

not indicate conventional frontages, mutual support, and substantial reserves at all levels. Sufferers of claustrophobia will find nothing in such a situation that will irritate their condition.

It is accepted that we must plan for provision of a force operating under defensive missions to gain time to permit starting the wheels of industry and to crystallize the thinking of a people to support an all-out war. This defensive mission must be carried out with limited troops on broad frontages. The time gained will govern the continued stand or fall of a nation and an ideal.

It is submitted that mobile defense may not be the only form of defense to adopt if adequate troops are available to firmly garrison suitable terrain. However, when troop availability is limited, frontages are excessive; when mobile reserves may move easily—terrainwise—and the enemy possesses a decided numerical superiority, mobile defense is a means of accomplishing the defensive mission. To these ingredients, for proper results, we must add an aggressive commander—one who has imagination, a desire to trap the enemy and destroy him, and one who holds *no great possessive pride* in a narrow trace of real estate known as the main line of resistance.

Imperative to the success of defense—and specifically mobile defense—is the presence of adequate aircraft to permit movement of the reserves when and where needed. This does not imply nor indicate that theoretical condition known as air superiority over a vast expanse. The available air conducting, if you please, a mobile air defense, can achieve superiority over a given area for a limited period of time, and this should be considered adequate for the purpose.

Nothing has been said concerning the characteristics of the enemy, since these characteristics will not govern the *when* of mobile defense as much as they govern the techniques employed in its organization or conduct, and will, therefore, be discussed in the aspects of *why*.

The *when* of mobile defense, in the broad sense, is obviously an unknown, but will be determined concretely on the day an aggressor elects to attack. We can support no other general form or method of defense, and there can be no question as to the strategy employed in conducting the early phase of future war.

Where Mobile Defense?

To answer the question of *where* completely, it would be necessary to develop a strategic estimate and list, in order of probability, the critical areas of the world. From the viewpoint of desirable types of terrain, any general terrain mass which permits the movement of mobile reserves to areas of probable employment is satisfactory, although certain land masses are undoubtedly better than others.

Mobile defense must, of necessity, be organized to effectively control the routes of communication. Large enemy forces must operate astride suitable routes upon which the logistician performs his miracles. Denial of these routes to the enemy will prove disastrous to him and will enhance success of the defense. Forcing the enemy to mass to seize these critical routes will concentrate his forces and permit the use of mass destruction weapons in such a manner as to make their development profitable. We need have little fear that an enemy will elect to go elsewhere. A large army cannot function without these vital routes of communication and, as a

Knowing the principles of mobile defense, we are inclined to question whether it is the defense of tomorrow or the method of defense the United States must employ today if she is to survive until tomorrow

matter of fact, cannot even go "elsewhere" without them.

In reality, mobile defense may be conducted in any locale in which friendly troops can move as rapidly as the enemy. However, the ideal is terrain which permits our forces to move faster than the enemy.

The Who In Mobile Defense?

Based upon international agreements and commitments, the United States will become a participant immediately in any war in the future. Few countries with which we have allied ourselves maintain a large standing army. Some countries possess little or no armed forces, yet an assault on their borders will commit us to immediate armed action. We are, in a grand sense, conducting a mobile defense today throughout the world. This contention is based upon the premise that nations can possess only offensive or defensive attitudes, since assumption of a neutral attitude is, in reality, a technique a nation may employ when defending itself.

Our widely flung outposts are thinly held, but provide early warning and establish possessive claim to certain positions. In no instance have these outposts been connected by a sharply drawn line to be held at all costs similar to a main line of resistance. Our reserves are a few mobilized units, a manpower reserve, and a huge production capacity. Coupled with this reserve is the ability to move forces that would be needed by land, sea, or air in a relatively short period of time. This meets the requirement for a high degree of mobility. The people of the United States in command, have a mental approach to the problem that meets this concept—at least partially so. They concur in the policy of maintenance of a large reserve, opposed to one of committing large forces in these outposts, and will support completely the vigorous counterattack, when necessary. They have accepted, and will undoubtedly continue to accept, penetrations of quite large proportions and not hold determinedly to a given line. It is apparent also that public opinion today will accept no major disruption without planning retaliation at a propitious time and place. This is merely mobile defense at the highest level.

Within the Army, it has been often assumed, although falsely, that mobile defense—a stepchild of armored thinking—is concerned principally with armored units. This assumption is dangerous. Our present armored strength is closely comparable to that which we will have at the outbreak of any war. At that outbreak of war, we must delay and defend to gain needed time. With limited troops, this is the time for mobile defense; however, will adequate armored units be available to conduct it? The answer now is, "No," and it may well be the same at the outbreak of a future war.

This concept of defense is nothing new nor mysterious. It is similar in some aspects to the form of defense utilized in the past for defense of our service installations. We outpost these installations to provide some delay and early warning, and provide, through an alert plan, a reserve that can move to the point where and when needed. The similarity ceases at this point, since service elements do not envisage the employment of this reserve for anything except blocking purposes.

This form of defense is merely a means to an end. By necessity, all forms of defense should be considered temporary in

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nature. Mobile defense does provide a means to accomplish a defensive mission, maintain an aggressive spirit, and exact a heavy toll on the enemy through aggressive action. Mobile defense can be conducted by any combination of combined arms, although some combinations may encompass certain characteristics which favor execution of that type action.

Why Mobile Defense?

Throughout the ages the art of war has been governed by a limited number of broad principles. The application of these principles has varied, and from these varied applications has sprung the method of actually executing certain operations which are rightfully called techniques. It is this category of actual performance that must, of necessity, change. Increased mobility, fire power to include mass destruction weapons, and political decisions all contribute to make imperative these changes. Changes in techniques are also developed which are based upon the enemy's characteristics and capabilities, and should be so designed as to capitalize on his weaknesses and counter his strengths.

Let us visualize the war of the future. We have discussed at some length our status as it applies to men and equipment at the outbreak of the future war. Let us now consider the enemy. Our potential enemy has a desirable state of mobility, an abundance of manpower, and generally operates under highly centralized control. He possesses an atomic capability and employs massed fire power to the maximum. It is against an enemy with these characteristics that we must plan and prepare.

Disregarding our own potential or capabilities, it will be desirable to tailor a concept of defense—assuming we must adopt this temporary mission—to best counteract the enemy's characteristics.

To combat mobility we must have forces that are more mobile. This achievement must be directed toward the development of sustained *combat* mobility. This implies more than the mere ability to move by truck from point to point. We must develop a precept of defense that does not envisage fighting rifle for rifle and man for man, since to do this would invite defeat. We must dispose our forces in such positions so as to avoid, with the bulk of our forces, the initial concentration for fire power the potential enemy will be capable of bringing into play. And last, we must dispose our forces in such a manner as not to provide remunerative targets for attack by atomic missiles.

This, then, implies a defense which disposes only enough strength forward to prevent surprise, which forces the enemy to deployment, which canalizes his efforts, and which provides adequate intelligence to the commander to permit a sound decision relative to conduct of the defense. Analysis of enemy capabilities further supports the retention of a major portion of the force in reserve in positions beyond the range of the massed conventional fire means. It will be essential that these forces, disposed in depth, have the mobility to move to a desired point with minimum delay and arrive in physical condition to fight. Although contradicted by efficiency, the threat of atomic attack forces us to dispose our reserves in dispersed localities with a plan of employment that envisions movement from separated locations to a given point for timely employment in adequate mass to accomplish the mission assigned. This also brings out an added need for the mobility discussed previously. It is useless to disperse to the point of being ineffective without the ability to bring adequate forces to bear on the enemy at a point and time of your own choosing. To do this is to permit the enemy to accomplish his mission without expending all his means.

It is obvious to the reader, by now, that

the proposed concept of defense in the war of the future is that of a mobile defense. I submit, however, that utilization of this term *mobile defense*, in this sense, does not imply an exact formation or definite variations of a formation to accomplish this, but, instead, it is a visualization of a *method* of conducting the defense. Within this method of conducting defense, formations may and should vary, based upon detailed analysis of terrain, the enemy capabilities, and the forces available to the commander.

As long as the possessive pride for distinct narrow strips of real estate, known as the main line of resistance, does not exist, forces disposed in the forward line will be relatively small in strength, and the preponderance of troops will be disposed in dispersed areas in the rear of this forward line. Their location must be in adequate depth to avoid the bulk of the enemy's conventional fires, and their contemplated employment must resemble the paths of artillery projectiles fired in an artillery time-on-target concentration in that, although they approach the point of employment from divergent directions, having started at different times, they must be capable of fighting at a given locality at the precise time desired.

Conclusion

It is possible that this method of defending is improperly called the *defense of tomorrow*. To determine positively the position to take on this point, we must ask ourselves certain searching questions.

Will an atomic war of the future dictate that we must achieve a greater dispersion of forces than ever before?

Does greater dispersion of forces dictate added mobility to mass forces at a propitious time and place?

Does mobile defense favor defensive formations that, to the maximum, provide protection from atomic attack through dispersed forces?

Must we consider any defensive concept that provides great flexibility and offers the opportunity to inflict heavy casualties on an enemy through aggressive action?

If you agree that the answer to all of these questions is *yes* in all instances, then you have, in reality, accepted the fact that mobile defense is not the defense of tomorrow, but the method we must employ today to survive until tomorrow.

Admittedly, war is not an exact science. Its principles cannot be considered to be laws in any mathematical sense. They do not constitute a specific theory or a method and they cannot be applied with equal value at all times. Indeed, in many cases one principle must be applied at the expense of another.

Classical authorities have long realized that despite established doctrines and principles designed to assure military victory, war is frankly a gamble. War will continue to remain fraught with possibilities of errors, miscalculations, and ultimate defeat. Its elements are simple, yet their interplay is complex.

General John E. Hull

THE NEW LOOK IN MILITARY HISTORY

A COMPARISON OF THE UNITED STATES ARMY'S HISTORICAL TREATMENT OF THE AMERICAN CIVIL WAR AND WORLD WAR II

Major Louis V. Naisawald, *USAR*

The views expressed in this article are the author's and are not necessarily those of the Department of the Army or the Command and General Staff College.—The Editor.

THE United States Army's historical treatment of the Civil War bears little resemblance to its coverage of World War II, except in the "official" label and the professed general objectives of the two programs. The aim of the currently appearing UNITED STATES ARMY IN WORLD WAR II series has been from its inception "to provide a work of reference for military and civilian students, as well as a record of achievements which deserve an honorable place in the pages of history." The decision to publish the official records of the Civil War stemmed primarily from a desire "to perpetuate the proud record of the Union armies," and to "furnish a means for historical reference and professional instruction," in compact, convenient, permanent form.

The *Official Records of the War of the Rebellion* was not intended to be a narrative history. Indeed, the notion of a government-sponsored historical writing project apparently never entered the minds of the Civil War generation. The writing of military history in this country had, up to this time, been of concern only to scholars, academicians, and devotees of the subject. The Government had never sponsored a military history project, and the Army—still battling a determined enemy in the woods about Cold Harbor and on the rolling hills of Georgia—did not seek the additional duty of preparing an account of its own operations. The proposal to publish the Army records came, not from the Army but from the Congress of the United States which, in May 1864, by joint resolution, directed the Secretary of War to prepare for publication all the correspondence, reports, and other official papers relating to the "existing rebellion."

However, 80 years later, in the midst of a much larger war, it was to be the Army who would clamor for the right to continue and to improve the historical treatment of its forces.

At the outbreak of World War II, the Army had a small historical section—an appendage clinging tenuously to the Army War College. Its program from World War I, through the lean years of 1920 to 1938, had been largely archival.

In 1941, there was a paucity of information on administrative experience in World War I. New agency heads were compelled to rely on 25-year-old, unrecorded, mentally cobwebbed recollections. There was an obvious need for a permanent record which told the story of previous experience—in a narrative style. If such

The full impact of the Army historical series concerning World War II is yet to be felt. However, there can be little doubt that it will form a substantial, factual foundation upon which future writers may build

a record did not exist for World War I, there were those who were determined that it would exist for World War II. President Franklin D. Roosevelt personally gave impetus to this project of narrative history, already suggested by the Bureau of the Budget. A prod from the White House was sufficient for the idea to be considered by many heretofore uninterested officials.

This time there were men within the military ranks who seized eagerly upon the opportunity to press for the new type of narrative coverage. This would be a detailed and trustworthy record of all important phases of the war—combat, administrative, and technical. And the proponents of the World War II program were hopeful of having their narrative-type histories used in the Army School System.

A great basic difference in the two programs, then, resulted from the intense initial interest exhibited by Congress in the Civil War project, leading to ultimate Congressional control over publication of the records, and the virtual disassociation of Congress from the World War II history. The hand of Congress is seen forever entwined in the long and involved process of publishing the records of 1860 to 1865, whereas, the World War II program has been part and parcel of the Department of the Army.

The project of publishing the *Official Records of the War of the Rebellion* began with the signing by President Lincoln—on 19 May 1864—of a joint resolution authorizing and directing the Secretary of War to prepare for publication all of the correspondence, reports, and other official items related to the "existing rebellion," from 1 December 1860 until the termination of the conflict.

The Adjutant General's Office was selected by the Secretary to handle the job. The work progressed very slowly. Finally, the Congress, in July 1866—thoroughly provoked when preliminary publications violated its instructions relating to chronological arrangement—repealed its act of May 1864 and directed the Secretary to appoint a "competent person" to take over supervision of the project. His appointment would expire in 2 years, during which time he was to prepare a plan for the publication and estimates of its cost. No person ever accepted the position.

The mood of Congress that July was becoming one of impatience and dissatisfaction with the entire scheme. In fact, there was some opinion in favor of scrapping it. Senator Charles Sumner invited the attention of his colleagues to the fact that they were then considering the publication of a series of historical documents on a recent war, while the series started by Peter Force, dealing with the American Revolution, was still uncompleted. In Sumner's mind, it was better to see the first series finished before taking on a second.

Congress showed a strong parental interest in its historical child during the period 1864 to 1866; then it became disenchanted or preoccupied. Occasionally, a member brought forth a resolution on the floor of Congress to inquire about the status of the project, but the inquiry never evoked an answer. Despite numerous reminders by the Secretary of War, Congress allowed the project to amble listlessly along. Finally, in 1874, it appropriated $15,000 and told the Secretary to begin publication. With this act, the title, *Official Records of the War of the Rebellion*, appeared for the first time.

The project was not placed under uni-

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fied one-man control until 1877, when Captain Robert N. Scott was appointed to direct it. By this time, $125,000 had been appropriated. The work had been carried on spasmodically—without an over-all plan—under a host of part-time supervisors, for 13 years, and not one acceptable volume had appeared. Captain Scott pulled the program together, gave it a firm plan, and yanked its wheels out of the gully and onto the road. By 1881, the volumes were beginning to roll from the presses. Scott did not live to see the work completed—nor did many of the veterans of that war—but so great was his influence, that the plan and the momentum he had given to the program carried it virtually unaltered to its completion 15 years after his death.

The project stretched from 1864 to 1902. It is quite obvious that Congress, in 1864, did not fully appreciate the magnitude of the task it had assigned, as an additional duty, to the Army. Its initial directives were loosely worded, and no prior planning or investigation into the feasibility of the program had preceded its acts. As originally conceived, this was to be the record of the Union armies—and no thought was given to including any captured Confederate records. But Congress, having given the project a start, soon proceeded to forget about it, content to bestow occasional paltry sums of money on it and prone to find fault with the way the Army was handling the assignment.

World War II

The preparation of World War II material likewise began while military operations were still going on. This time there was to be a plan—but one which evolved from many quarters. The Army was fortunate in having an Assistant Secretary of War—John J. McCloy—who was sincerely interested in seeing a new and vigorous historical program carried on by the Army, during and after the war. A small group of officers sought McCloy's assistance, and through their combined efforts a historical branch of the Army was created in G2, War Department General Staff. Several distinguished civilian historians were brought in, and later the status of the project was raised to the level of a division of the War Department Special Staff.

The proponents of this new historical program rejected the old concept of archival history, championing instead the narrative type. An advisory committee of historians recommended to Secretary McCloy a program that would provide for a good records preservation system, up-to-date monographs, useful for the Army's schools, a good popular history to be published after the end of the war, and, eventually, the publishing of an authoritative official history. These views accorded with McCloy's own ideas and they were promptly incorporated into a directive. As late as 1946, however, some, including Douglas Southall Freeman, still clung to the idea that the Army should confine its historical activities to the collection and preservation of documents and records.

Narrative History

The new history had another champion—Secretary of War Robert P. Patterson. He pointed to the utter failure of the World War I program—one based on the *Official Records* plan—and stated that the Army needed the narrative style of history to enable it to undertake a thorough soul-searching and self-critical analysis. Secretary Patterson also pointed out that the sheer volume of records—34 tons of operational material from the European Theater of Operations alone—would preclude any complete publication, and even a selection process would probably run into thousands of volumes. The Secretary was well aware that the Army had been plunged into a second world war with no organized history of the first one to turn to for guidance.

With the establishment of the historical branch in G2, the Army's program for World War II began to breathe. Overseas theaters and commands had—in some instances—already created historical sections. These were now theoretically subject to advice and guidance from the Washington office. Eventually, teams of officers and enlisted men were assigned to commands as historians, although their role became primarily one of interviewing and data gathering rather than writing.

The program's first published work appeared in the form of the short, illustrated monographs called the *American Forces in Action* series. These studies were intended as a form of entertainment and education for hospitalized wounded, and 12 of them were eventually published.

After the conclusion of the war, a nucleus existed around which to start the postwar historical program. To advise and counsel the Historical Division, a permanent advisory group had been formed. This body was composed of three military members and three eminently respected civilian historians, including James Phinney Baxter, President of Williams College.

It had already been decided that the postwar writing would be narrative and analytical. Many of the officers and enlisted men who had served as military historians returned as civilians to help write in full the story which they had gathered in part. One may safely say that the history of the United States Army in World War II, although administered by military authority, is being written by professional historians, thereby permitting maximum objectivity.

Unlike the *Official Records*, the World War II history embraces strategy, supply, administration, planning, and training, as well as combat operations. The enemy's story—from his own records—is woven into the narratives instead of constituting a separate unit, as in the *Official Records*. The volumes of this new history acquaint the reader with the problems of allied and combined operations; they take him into the Office of the Chief of Staff, show him the problems and accomplishments of the technical services, enable him to visit the training camps, and follow the troops into the hedgerows of Normandy or the jungled islands of the Pacific. It is truly in an all-encompassing form.

A library containing complete sets of both the *Official Records* and the UNITED STATES ARMY IN WORLD WAR II must provide space for over 200 volumes. As finally published, the Civil War volumes comprise 128 books, divided into series, volumes, parts, and chapters, by campaign or engagement, and by theater. And these 128 books contain but a small portion of the mass of Army records from that war, as administrative and supply records are virtually excluded.

The Current Program

The current program envisages about 90 volumes. Of this number, 30 will cover ground combat operations in all theaters; 13 will deal with special subjects; 7 tell the story of the United States Army Air Forces; and the balance will be devoted to the planning, the administrative, and the technical aspects of the war.

Both the *Official Records* and the current series—except the Air Force volumes—are products of the Government Printing Office, but the distribution systems are entirely different. Congress retained for itself control of the distribution of the *Official Records*, although the War Department acted as the disbursing agent. Of the 12,840 sets printed (1,643,520 books and 12,615 atlases), over 10,000 sets were distributed by members of Congress to libraries, individuals, and groups; 1,000 sets were assigned to the Executive Departments; 1,000 sets were distributed among officers of the Army and contributors to the work; and the small balance was disposed of by public sale. As the

plates were bulky, Congress authorized their destruction in 1903.

Today, the Army controls the distribution of a fixed number of each volume—currently set at 2,000 copies—which must, by Army Regulations, be sent to all Army installations and schools, its sister services, and other government agencies. The Government Printing Office has the right, by law, to print the Army's requested number, and to print, in addition, as many other copies as it is believed may be bought by the interested public. The decision to make subsequent printings also rests with the Public Printer.

The sales to the general public of the World War II series have varied with the type of volume. Obviously, the technical and administrative histories have had little popular appeal. However, the combat volumes such as *Guadalcanal*: *The First Offensive, Three Battles*: *Arnaville, Altuzzo,* and *Schmidt,* and *The Fall of the Philippines* have sold well. All told, the Government Printing Office has sold, as of 1 March 1954, 41,000 copies of the 20 published volumes, and 200,000 copies of the *American Forces in Action* series.

Cost Comparison

The sale price of the Civil War books, with the exception of one volume, was less than $1.00, usually in the neighborhood of 70 cents. This was less than the average printing and binding cost of 82 cents and almost a third less than the estimated total cost of $1.89. The current sale prices of the World War II volumes are running in excess of $3.50 each, with one volume—*The Lorraine Campaign*—now priced at $11.00.

Accurate details on the number of persons and the time spent on the *Official Records* project, from its inception in 1864 until its completion in 1902, are lacking. However, during the years 1885-97, the period when 97 percent of the work was published, the project averaged 6 officers and 69 clerks.

The number of persons employed in the preparation of the World War II volumes has been much greater. The total strength of the Office of the Chief of Military History alone has varied from 49 officers and 115 civilians in 1947, to a peak of 41 officers and 181 civilians in December 1949. And these totals do not include the historical staffs working for the Air Force and technical services. But, as will be seen, the job is being done quicker and at less cost.

The actual writing of the World War II histories began in 1944. Two years later, the first volume of the now-familiar green clothbound official series reached the library shelves. By Christmas 1953, 20 volumes had been published. The end of 1954 may see the total as high as 27, and by 1958, the published story of the Army in that war should be completed.

Although it is still unfinished, it appears that the writing of the UNITED STATES ARMY IN WORLD WAR II series will be completed in about 14 years, at an estimated cost of about 6.5 million dollars. Of this amount, 4 million will come from the profits of post exchanges and will not be appropriated by Congress from the American taxpayer's pocket.

This rate compares favorably with the 37 years consumed in completing the *Official Records.* While it can be dangerous and meaningless to contrast costs of items when the values of currency have changed greatly, the evidence is that the World War II program is faring better here too. The figure $3,158,515.67 gives the estimated total of the salaries, the pay and allowances, the printing and binding, and miscellaneous expenses involved in putting out the *Official Records.* If one uses the average of the general wholesale price indices for the years 1870 to 1900 as a conversion factor, the 3.1-million-dollar cost of this work would be three

times this, or the equivalent of about 9.3 million today.

Any student of the American Civil War will vouch for the usefulness of the *Official Records*. The "after-action reports" of Spotsylvania Court House, Gettysburg, or Chickamauga are as near as the nearest library or, for the more fortunate, their own bookshelves. The reader who picks up any good work on the Civil War will find footnotes rich in references to the "ORs." The time and expense these volumes have saved the Government in answering queries are incalculable.

The full impact of the World War II series is yet to be felt. However, there can be little doubt that it will form a solid foundation on which subsequent writings, official or otherwise, may build. The Army has been provided with a means by which the lessons learned in a previous war are authoritatively and objectively reported, 'ere the fog of hindsight and mist of nationalization becloud the true story.

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THE SPANISH-AMERICAN WAR
A Turning Point in Military History

Copyright 1954 by Captain C. Joseph Bernardo, *Adjutant General's Corps* and Eugene H. Bacon, *Ph.D.*

This article is a chapter of a forthcoming volume to be published in the near future on the military policy of the United States 1775-1953.

The views expressed in this article are the authors' and are not necessarily those of the Department of the Army or the Command and General Staff College.—The Editor.

THE closing years of the nineteenth century found the United States ready to assume new importance upon the stage of world affairs. America had been transformed from an agrarian nation into a young industrial giant that had tamed the vast continental domain of America and was now seeking new fields in which to exercise its restless and latent powers. Throughout a large part of their history, the American people had shown little interest in nor developed any well formulated set of ideas regarding their country's destiny in the larger world. Until the 1890s, a dominant concept of America's destiny was that of building a civilization at home with an abundant and good life for all within the expanding continental domain.

However, by the 1890s, the idea that national destiny extended even beyond the seas had triumphed. It was argued that America must expand in order to spread her republican institutions and give the benefits of Anglo-Saxon civilization to backward peoples. Josiah Strong, a Congregational minister, gave currency to these ideas in *Our Country* and stressed the mission of the American people to carry to the far reaches of the globe the great benefits of civil liberty and Christianity. Other able apostles of imperialism included Theodore Roosevelt, Albert Beveridge, Alfred Thayer Mahan, John Fiske, Henry Cabot Lodge, Professor Burgess, and many others in important sections of American intellectual and political life.

Americans were told—seemingly with the scientific sanction of Darwinism—that the Anglo-Saxons, including the Americans, "possessed natively superior governing talents and in consequence were destined to extend their empires over those less fortunately endowed." Mahan, in addition to preaching the doctrine of naval supremacy as essential to national greatness, also supported the thesis of America's mission to spread Christianity and democracy over backward regions, thus linking war and imperialism with moral righteousness and idealism. The moral na-

Our incompetence in the Spanish-American War was degrading to a nation on the eve of becoming a major power. However, it did serve as a forcible reminder of the need for preparing for war in time of peace

tion, the powerful nation, he argued, must assume responsibility for the triumph of morality on earth. Mahan had great influence upon Roosevelt who combined an interesting blend of idealism and vigor with the conviction that "the man who fears death more than dishonor, more than the failure to perform duty, is a poor citizen; and the nation that regards war as the worst of all evils and the avoidance of war as the highest good is a wretched and contemptible nation, and it is well that it should vanish from the face of the earth."

A "Forceful" Foreign Policy

These tenets of imperialism—aided and abetted by an inaccurate but sensational press—produced a forceful attitude in the conduct of American diplomacy. America was at a turning point in her history, and a strong foreign policy seemed to be popular even if it did nothing more than divert attention from embarrassing domestic questions. The frontier was gone and the industrial revolution was remorselessly marching toward its final and complete acceptance. Passions and emotions had largely lain dormant since the great tragedy of the Civil War, and the leaders of our nation had carefully ignored or tried to smother the basic principles and issues in their unceasing quest for office and power. Now a new national self-consciousness stirred and the pulse of the nation beat in a more rapid tempo. The Navy, which had been allowed to dwindle, was rising from its impotence; in May 1892, the *USS New York* was given her trials and "the shame that for 25 years had rested on our Navy was wiped out." Interest in an interoceanic canal was revived and platform oratory took on a deeper and more grandiloquent tone.

The new manifest destiny was expressed in the administration of Benjamin Harrison. His Secretary of State, James G. Blaine, tried to purchase the Danish West Indies, to get naval bases in Haiti and Santo Domingo; in Samoa, he sought to prevent exclusive German or British control; and finally, he wanted to pick the "ripe pear" of Hawaii.

In 1889, the American public awoke to the Samoan affair which, for a time, presented the sensational possibility of war with Germany. There was no war, but there was a glamorous Congress of Berlin in which American diplomats strutted across the world stage. Then in 1891, there was more excitement in the Pacific when a liberty party from the *USS Baltimore* was set upon by a mob in the streets of Valparaiso. This insult to the American flag evoked such a wave of belligerent enthusiasm that for a time there was a distinct possibility of war between Chile and the United States. The Chilean crisis passed. However, in 1892, there was a proposal to buy the Danish West Indies as a naval base. Although it failed, it did serve to whet imperialistic appetites for a bite of the "Hawaiian pear." Revolution in Hawaii would have meant annexation except for Grover Cleveland. Although the plans of the imperialists had been checked, the Hawaiian affair had again witnessed a renewed vitality in the doctrine of manifest destiny.

America's forceful foreign policy reached

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its peak when Secretary of State Olney, in 1895, delivered his "21-gun salute" to Great Britain with reference to the Venezuelan boundary dispute. "The United States," he said, "is practically sovereign on this continent, its fiat is law upon the subjects to which it confines its interposition. . . . because in addition to all other grounds, its infinite resources combined with its isolated position render it master of the situation and practically invulnerable against any and all other powers."

This open display of vigorous diplomacy served notice that American fundamental policies were not to be dismissed by a casual nod from Downing Street. The Monroe Doctrine meant hands off. It also meant that even the pacific and anti-imperialist Cleveland was being swept along by the spirit of the day. It was to be only a matter of time until sharp phrases would be aimed at the Spanish Government whose last vestiges of empire in the New World were obstructing the Caribbean policy of the United States.

Stuffed Club Diplomacy

If there had been no Cuban question, there would have been no war with Spain, but behind the Cuban question there was the larger problem of the Isthmian question—what power would control the future waterway between the two oceans? Annexation or control of Cuba and Puerto Rico would be of immense importance in the protection of vital American interests in the Caribbean.

Led by the "yellow journals," the American public forced a reluctant President to war in April 1898. This was the culmination of jingoism, frenzy, and imperialism as exemplified in the forceful foreign policy since 1889. America had been talking in a high key during these years, but did America have arms strong enough to provide the necessary orchestration for this symphony of imperialism?

The United States had a pitifully small Army to support its belligerent foreign policy. In the reorganization of the Army in 1866, the available strength was 51,606; in 1869, 35,036; in 1870, 32,788; and in 1874 it was reduced to 25,000. Upon the outbreak of the Spanish-American War, the Army numbered 28,183 officers and men who manned the coast defenses and the many Army posts scattered throughout the country. Upon the conclusion of the Civil War, the United States was one of the most formidable military powers. However, by the 1890s this was no longer true. Although the country increased greatly in population and immensely in wealth, it had become also "by far the feeblest in a military sense of all the nations called great." Population and wealth do not constitute military strength. They are only the elements from which military strength may be developed in time and by appropriate means.

Not only did Country and Congress fail to realize or understand the importance of an adequate military force to implement our foreign policy, but they also failed to provide a force strong enough to cope with the Indian problem. Much loss of life, General Philip Sheridan pointed out in his report of 1877, had resulted from the necessity of engaging strong forces of Indians with detachments of troops generally inferior in point of numbers. Strong forces, the report continued, would have been of great value in preventing the Indian wars, and would "without doubt, ensure permanent peace in that quarter." General Phil Sheridan was extremely bitter over this niggardly policy. No other nation in the world, he observed, would have attempted the reduction of these wild tribes and occupation of their country "with less than 60,000 or 70,000 men." Yet, this was attempted by the United States with a force of less than 14,000, nearly one-third of which had been confined to the Rio Grande boundary. The consequence of this policy rendered every

engagement against the Indians "a forlorn hope" which was attended "with a loss of life unparalleled in warfare."

The War Department would annually storm the heights of Capitol Hill in an endeavor to increase its appropriation and strength. However, the guardians of the nation's safety and purse were easily able to stem these forays. The War Department had as its allies only logic and necessity, while Congress could always call upon apathy and, at times, hostility and prejudice against the military.

In addition to stressing the need to be prepared against foreign aggression, the War Department asked for larger funds and more men on a variety of grounds. Continental isolation, it was argued, was no longer any security against attack. Recent changes in the means of rapid ocean transportation had changed the Atlantic from its former character of a barrier to the operations of a great army, "into a secure, easy, and cheap line of operation, of communication, and of supply for any nation having the necessary naval supremacy."

Another argument of the War Department was to the effect that a larger army was needed to preserve order and that the local militia should not be our only reliance in suppressing disorder. In the light of the labor strife and unrest of the period, this argument might have been expected to be listened to with sympathetic interest. But even this appeal to propertied interests fell upon barren ground. Finally, it was argued that in a country as prosperous as the United States reasonable annual expenditures in preparation for the nation's defense would not diminish the annual increase of national wealth. On the other hand, if war came to the unprepared nation, the loss would amount to thousands of millions of dollars, besides the great loss of life and other evils which could not be estimated.

When hostilities were declared, public opinion was soon to be thoroughly aroused by the press reports of the war. As the Washington *Star* of 5 July 1898 pointed out: "Uncle Sam has Spain to thank for nothing, except a forcible reminder of the need for preparing for war in time of peace." Previous to the Spanish-American War, the faults of the Military Establishment had largely been heaped upon the commander in the field and, consequently, public opinion was directed not at the system, but at the hapless general who had to conduct his campaigns without the benefit of staff planning. The War Department was not only starved for money and men, but it was also badly in need of internal reorganization. It required a debacle like Tampa, involving the logistical problems of an overseas movement, and an influential and active press, to shift the criticism from the line to the staff.

Our incompetent conduct of the Spanish-American War was unbecoming to a nation on the eve of becoming a major world power. We began and fought the war with Spain with a staff untrained for its mission except that of maintaining the peacetime military force. Our national policy was imperialistic, yet to support this foreign policy we relied upon an army organization not only lacking in quantity but quality as well. The lack of quantity might be excused by our traditional aversion to a strong peacetime army, but the lack of quality was inexcusable. In proportion, as the circumstances and policy of a country forbid a large military establishment, it is important that as much perfection as possible should be given that which may at any time exist.

Such considerations did not move the political masters of the Army. In the middle 1890s, authorities seemed to believe that our wars were over, and the military reducing diet had been steady. The Secretary of War, Mr. Daniel L. Lamont, was quite complacent about the structure of the staff organization in

1896, and generally applauded the reductions made in the staff corps. This, he was sure, did not seriously affect the public interest nor did it result in extra work for any officer. On the contrary, he said, "some further reductions can be made without detriment to the services."

The structure of the Army was considered sound—as indeed, individual, scattered units were sound—because of experience in the Indian wars. Officers' thinking, however, became geared to small units and slow promotions. All details of decision were handled by the War Department bureaus in Washington. It was an Army which lacked both the men and the organization to carry on an overseas campaign.

Upon the outbreak of war, the Army numbered 28,183 officers and men, but there was no plan of mobilization, no higher organization, no training in combined operations, no provision for the assembling or transportation of an overseas expedition or for the handling of any large body of troops, whatsoever. During the war with Spain, military policy was almost entirely subordinated to the dictates of expediency from day to day. With the administration of the War Department, then existing, it was almost impossible to formulate or carry to a legitimate conclusion any military policy which attempted to make provision beyond a few months in the future. However, even the most efficient organization, in formulating policy without the necessary funds to implement its plans, has difficulty in realizing its objectives.

The Navy, fortunately, had received better treatment. In the Spanish-American War, the exploits of the Navy were to stand in sharp contrast to the Army's performance. The development and strength of the Navy must be considered in an analysis of the military posture of the United States upon the outbreak of war, not only for the purpose of comparison with the War Department, but also as an integral part of the military policy of the United States.

Naval Security

The once proud American Navy had fallen upon dark days in the era following the Civil War, at which time it had been stronger than the navy of any other nation. The post-bellum period, however, had witnessed deterioration in ships, training, administration, and vision. It was the duty of Country and Congress to see to it that the Navy did not perish and that it be restored to a condition of usefulness in which it could be so expanded as to become "the ready means of protection at home or of action and aggressive warfare in the ports and waters of an enemy."

Harold and Margaret Sprout have listed certain obstacles to the creation of an adequate Navy in the 1880s. These included:

1. Partisan obstruction to naval bills.
2. The spoils system.
3. Inexperience and costly mistakes.
4. Poor administration and organization.
5. Deficiency of manufacturing facilities.
6. Prejudice against armored vessels.
7. Stubborn adherence to sails.
8. A strategy based on commerce raiding and passive defense.
9. A general feeling of false security and isolationism.

Coming upon the heels of the Arthur administration, which had made a feeble start to rehabilitate the Navy, President Cleveland, in his Annual Message to Congress in December 1885, stressed the importance of an effective Navy for the protection of our extended coastline, if only to discourage aggression.

As his message clearly indicated, Cleveland was fully aware of the value of a strong Navy. During his administration, 93,951 tons were built or being built, as compared to 11,986 tons during the administration of President Arthur. The steps

which had been taken by Cleveland were continued under his successor, President Harrison, and, indeed, tremendous strides were taken in modernizing the Navy and equipping it with ordnance equalling or surpassing that of foreign powers. By the end of the Harrison administration, the wooden vessels of war had disappeared and the United States was the seventh ranking naval power.

Upon the eve of the war with Spain, the effective force of the Navy consisted of 4 battleships of the first class, 2 of the second class, 2 armored cruisers, 16 cruisers, 15 gunboats, while 5 battleships of the first class were under construction. The Navy had made a beginning in building, but it was still far behind the needs of the nation. The Assistant Secretary of the Navy, William McAdoo, on 2 June 1896, could not find words strong enough to condemn what he considered "criminal folly which leaves this nation practically unarmed. In the face of portentous happenings and dire possibilities, we are practically without any store of small arms, and have no spare guns in the Navy, and a very limited supply of projectiles."

Despite this criticism, the Navy had made significant advances, particularly in the creation of a Naval Militia and the establishment of a Naval War College.

The Naval Militia

While the makers of our early military policy gave much thought to the concept of militia, it consisted, for the most part, of land forces. The Naval Militia played a less conspicuous role. During the Revolutionary War, reliance was placed on the Continental Navy and Privateers. Toward the close of this war the state navies disappeared, even though the idea of such a force was present. During Jefferson's administration, proposed legislation was drafted which provided for the establishment of a Naval Militia, but it failed to be enacted.

The problem of naval defense throughout the greater part of the nineteenth century was left to the Regular Navy. As a result of this policy, during the Civil War, the Regular Navy had difficulty in securing the necessary manpower. While the Civil War had demonstrated the need for citizen forces for naval defense, no significant attempt was made to maintain personnel released from active duty in a trained reserve status. It was not until the latter part of the century that a move to establish a reserve force was initiated.

The Naval Militia movement began in 1887 and reflected the endeavor to create a force of men and ships to augment the Regular Navy during periods of national emergency. On 26 June 1888, Senator Washington C. Whitthorne introduced a bill which, while it did not become law, was the basis for action in several states. Massachusetts was the first state to pass an act creating a Naval Militia. This act, passed in 1888, provided for a battalion to be known as the Naval Battalion of the Volunteer Militia. It was followed by similar legislation in other states during the next few years.

On 2 March 1891, the first Federal appropriation in the sum of $25,000 "for arms and equipment of the Naval Militia" was made. This was the beginning of annual grants, but it was not until just prior to the Spanish-American War that the appropriation was increased to $50,000 despite the rapid growth of the militia. However, during the Spanish-American War, the militiamen were used both in the United States Auxiliary Naval Force and in the Regular Fleet, thus not making clear whether they were considered as a second line of defense or as reserves. A total of 24,123 enlisted men served, of whom 4,224 were mustered in from the Naval Militia organizations. Of this number, 2,600 served in the Regular Navy and the remainder in the Naval Auxiliary and

the Coast Signal Service. In addition, 267 Naval Militia officers were commissioned in the Navy.

One of the lessons derived from the war was that a national Naval Reserve was a necessity. The prewar indifference to a reserve was gone and the Navy Department began to draft plans for the organization of a reserve. However, the question as to the relationship of a proposed reserve and the existing militia was not answered. The militiamen were not opposed to the creation of a Naval Reserve, but they did want to preserve their organization. The struggle for the creation of a Naval Reserve was to be one of the high lights in the development of a stronger Navy, and the Naval Militia was to become, like its land counterpart, increasingly federalized.

Naval War College

In the renaissance of the Navy, the establishment of the Naval War College deservedly held high rank. The idea for the establishment of a postgraduate school for Naval officers had been advanced in the pages of the *Proceedings of the United States Naval Institute* and was the genesis for the formation of a Naval Board which was commissioned on 3 May 1884, by Secretary Chandler, to study the matter. The Board emphatically recommended the creation of such an establishment and on 6 October 1884, Chandler established the Naval War College at Newport, Rhode Island. In his letter of 11 February 1885 to the Senate, the Secretary stated that "this college is intended to complete the curriculum (naval) by adding, to an extent never heretofore undertaken, the study of naval warfare and international law and their cognate branches."

The establishment of the Naval War College was not received with favor by the naval profession and Congress was "not inclined to favor an institution founded without its consent by executive decree." Therefore, the first years of the Naval War College were marked with neglect and criticism and it was not until Secretary Herbert's administration (1893-97) that its future was assured. Under the sympathetic eyes of Secretary Herbert the work and purpose of the War College was considerably broadened. The permanent, instead of temporary, assignment of faculty members was inaugurated, emphasis was placed upon the solution of war problems, and the War College also began to assume some of the duties of a general staff. Thus, the Naval War College developed into something much more than simply a postgraduate course. The Secretary of the Navy, in an address given in August 1893, viewed it as a school of theory and application where increased "knowledge is being acquired and practical information is being amassed without which the Navy Department cannot possibly, in the event of war, utilize the naval resources of our country."

The Navy had come a long way as an effective instrument of national defense, and certainly the Navy was in a far better position to implement national policy than the Army, when hostilities broke out with Spain. We were not yet a first-class naval power and it was fortunate that the Navy faced the Spanish fleet, for the brilliant victories of Dewey and Sampson greatly popularized the Navy and helped to create the favorable climate of opinion which did permit the construction of a powerful fleet. The Spanish-American War "gave an impetus to every naval activity" and following the war, large sums of money were "freely granted for naval purposes." The Navy had indeed fared better than the War Department. This is again vividly illustrated by a consideration of the status of our militia units upon the outbreak of the war with Spain.

A basic factor in appraising the military strength of the United States, upon the outbreak of the Spanish-American

War, is a consideration of the strength and efficiency of the militia units of the states. The National Guard numbered about 100,000 men with an almost total lack of everything except a certain familiarity with close-order infantry drill. To add to the difficulties of an effective utilization of the National Guard was the fact that it was under the control of the respective governors of sovereign states. The National Guard was "devoid of any form of co-ordinating organization and directed by an equal number of civilian executives none of whom ever overlooked those political considerations which so greatly complicate public affairs within the United States."

Again it may be asked whether this condition was the fault of the War Department or of the Congress and the nation at large.

To make the militia an effective force, two vital factors were necessary—legislation and money—both of which Congress had refused. The states had been equally suspicious of any proposals whereby they would lose any measure of control over their units.

The laws of the United States relating to the militia were enacted in 1792, and it was quite apparent that they needed thorough revision and renovation. Increased Federal control was necessary, for the volunteer soldiers were deficient in discipline and in all the other duties that teach a soldier to take care of himself while in camp or upon a march. The lack of essential equipment and the variety of weapons among the various units made any possibility of the employment of considerable bodies of the militia of different states in joint exercises a shadowy dream. The states held many unserviceable, worn-out, or obsolete supplies and weapons advanced to them by the War Department in past years. It was suggested that authority be granted to the War Department to sell to the states at cost price, such arms and equipment as they needed, and that the proceeds of such sales be credited to the appropriations for supplying and replacing such equipment. These propositions involved no increase in the appropriations for the Department, but they did seek the bestowal of the authority "necessary to the success of any plan looking toward the joint action of the Army and the National Guard of the states in case of war." Unity of action between the Army and the state troops on the field required uniform armament and equipment; however, the authority was denied.

It seemed clear that if Congress would not sanction an adequate Regular Army, it must have a strong reserve force. A national volunteer reserve could be organized under the general power of Congress "to raise and support armies." These units could be apportioned among the states, to be brigaded with the regular troops, organized with them into divisions and army corps, and called out for field instructions annually—long enough to make it effective as an army. The results of war must be determined by preparations made in advance and it was clear that previous military debacle had occurred simply because the United States was never fully prepared in advance.

Experience has shown that the militia called out for a short period upon the outbreak of war had to be replaced as speedily as possible by a national force enlisted for a longer period of time. Again and again the War Department pleaded for changes in the laws to permit arming the militia with improved weapons and equipment, and to promote closer relations between Federal and state troops. Neither Congress nor the states were interested in changing the traditional position of the National Guard units.

In considering the appropriations of Congress for the National Guard, the picture is indeed amazing. The Congress

could hardly be called overgenerous. The first appropriation for the state units, in 1808, was $200,000. The annual appropriation remained unchanged for many years, although the country's population increased. Repeated recommendations for an increase of this appropriation were refused. In 1889, the appropriation for a force of 106,500 men was $400,000, or about $3.75 per man. In 1892, the War Department pleaded for an appropriation of 1 million dollars which it termed "hardly extravagant," for recent appropriations had been entirely inadequate and the War Department was "under the constant necessity of refusing supplies called for from the different states."

An unco-ordinated, ill-equipped, and financially starved National Guard was hardly a strong, reliable, or well-regulated militia which the Constitution defines as "necessary to the security of a free state." This condition, however, cannot be fairly blamed upon the War Department which had repeatedly pointed out the weaknesses and dangers, and had proposed remedies. This weak and unreliable reserve force was the creature of the Congress and the states.

Who's to Blame

War was declared on Spain on 21 April 1898. Secretary of War Russell A. Alger, noted that: "The governmental machinery was altogether inadequate to meet the emergency. For the preceding 30 years, it had been called upon to plan for the needs of the Regular Army in time of peace and, naturally enough, had become quite fixed in the narrow grooves of peace." The attitude of Congress, during these 30 years, certainly contributed to the disorder and maladministration which followed. Although the war was brief, and the Spanish resistance crumbled quickly, the problems confronting the War Department were gigantic. They were enough to try a most effective staff; Mr. Alger's War Department struggled valiantly to bring order out of chaos, but the handicaps were too great.

From the moment it became apparent that a Volunteer Army was to be raised, and that there was to be an increase in the Regular Army, the Offices of the Secretary of War and The Adjutant General and the corridors of the War Department were uncomfortably crowded with applicants for appointments, or with members of Congress presenting the claims of constitutents for appointment to office. The Secretary of War and The Adjutant General could only attend to the proper functions of their offices in guiding organization, equipment, and mobilization of the Volunteer Army by secreting themselves for a few moments at a time, or during the night, when most of the real business of the Department had to be conducted, to avoid the pressure from office seekers.

This political pressure even served to emphasize the lack of military intelligence and suitable staff planning. A division of military information had been in operation since 1889 as an adjunct of The Adjutant General's Office, but it had been so dwarfed and subordinated to the routine work of that office that the outbreak of the war with Spain found it "without accurate maps of the enemy's territory and with but meager information of his defenses and military resources."

A striking example of this planlessness, although the same sombre picture was prevalent in all of the Army's improvised camps which had to care for 270,000 hastily mobilized men, was to found in the selection and operation of Tampa as the port of embarkation or debarkation. Colonel Roosevelt, in his biting phrases, vividly described "the confusion and lack of system and the general mismanagement of affairs here." This condition was re-echoed by General Shafter, who was in command of the expeditionary force at Tampa.

It was apparent that the organization of the War Department left much to be

desired, and the lack of co-ordinated staff planning was vividly underscored. Yet, many critics of the War Department's performance in the Spanish-American War are blinded by the blunders and fail to understand the reality of the War Department's problems and performance. Keeping in mind the problems and handicaps already cited, it is necessary to view the overwhelming task that faced the War Department in April 1898 in order to get the proper perspective.

The Regular Army numbered only 28,183 men and this was the nucleus which had to muster in, equip, organize, and mobilize approximately 250,000 men. After 33 years of peace, during a great part of which the Army did not exceed 26,000 men, it suddenly became necessary to arm, clothe, feed, and equip more than a quarter of a million men. Even with the best of preparation and equipment this was a tremendous job, as indicated by a later Chief of Staff, George C. Marshall, who was "opposed to plunging into a sudden expansion of personnel," and who intimated that no large addition could be readily digested by an army short in both the personnel and material facilities for training recruits.

The lack of equipment is a point often raised in criticism of the War Department. Here again, however, the finger of blame should be aimed at the Congress and not the War Department. On 9 March 1898, Congress appropriated "for the national defense" the sum of 50 million dollars. However, none of this sum was to be used for offensive preparation; it was to be used only for coast defenses and the Navy. On the eve of conflict, the War Department was not permitted to make offensive preparations. The War Department could make no purchases or even contract for any of the material so soon to be needed for the new army. None of the bureaus had reserve supplies on hand, and being unable to increase its stock, "each had produced only enough for the immediate everyday needs of the regular establishment on a peace basis." The economy of previous years, by which nearly every article of equipment not immediately needed by the Army was disposed of, and no provision made for emergencies, rendered immediate effective expansion of the Army impossible.

The Press Howls

The popularity of the war with Spain was almost entirely the work of the press, which had apparently convinced even the Chairman of the Senate Foreign Relations Committee that the Spanish Government, through its commander in Cuba, General Weyler, was guilty of atrocities. Senator Sherman was not alone in his desire to drive the hated Dons out of Cuba. Volunteers and militia units swamped the camps and they, in turn, were swamped by newspaper correspondents.

Embarrassing to the Army and often hindering its operations, this "army of newspaper correspondents" proved to be a blessing to the future Military Establishment for the difficulty encountered in the past in securing consideration of any comprehensive policy concerning preparation for national defense has been the result of the absence of any serious public opinion on the subject.

The same press which had done so much to bring about the war by its attacks on the Spanish regime in Cuba, now turned its guns on the War Department. This criticism was not based upon misinformation or lack of coverage, rather it stemmed from a first-hand observation of the chaos the war had wrought within the War Department. Among the crowds which filled the rooms and corridors was a host of newspaper reporters, who listened to almost all the business which was carried on between The Adjutant General and his assistants. It was "next to impossible to keep anything from the press under those

conditions." Indictments and abuse flowed from the pens of the war correspondents, whose style had been sharpened by their vitriolic attacks upon Spain. McClellan had told of the need for trained staff officers only a few years before, yet, *The Review of Reviews*, in commenting on the lack of progress in the Army, drew the conclusion that "the sudden organization and equipment of about 300,000 men has involved what are practical business problems, for which our Army does not, as yet, possess the men of a sufficiently trained capacity."

And who was at fault? *The Review* of *Reviews* felt that it was the inevitable consequence of "the policy that we adopted after the Civil War, which was to do without an Army altogether, except as we needed it for detached garrison and guard service, chiefly in the Indian country." While our national policy had not been conducive to military preparation, the fact still remained that "the Cuban campaign had been foreseen by intelligent officers more than a year, but the department which clothes the Army had taken no steps toward providing a suitable uniform for campaigning in the tropics until war was declared." Even Theodore Roosevelt—who as much as anyone else had wanted this "nice little war"—bitterly complained that "there is no head, no management in the War Department. Against a good nation we should be helpless." Partially, the fault was in the system, the system under which a bureau chief could "work along his own lines in ignorance of, and on a different basis from, what other bureaus were doing—a course contrary to every economic and business principle."

Pointing to Reform

The war with Spain brought forth, in a very marked degree, dissatisfaction with the method of Army administration. So widespread was this feeling in the country that the President felt compelled to assemble a board to investigate the conduct of the war with Spain. The Commission—headed by General Dodge—sustained almost all of the charges of incompetence laid by the press. The report of this investigating Commission is most voluminous and interesting, and it also served the purpose of focusing attention upon the need for reform and reorganization within the Army. For many years, the report pointed out, "the divided authority and responsibility in the War Department has produced friction, for which, in the interest of the service, a remedy, if possible, should be applied."

Since the Constitution designated the President as Commander in Chief of the Armed Forces, there was no question about his position. Below presidential level, a smoldering controversy continued to cloud the status of the commanding general and his relationship to the Secretary of War. While the Secretary was a regularly designated official, through whom the President's policy was to be effected, the commanding general, by long custom and Congressional aid, had come to occupy a position almost co-ordinate to that of the Secretary of War.

The Act of 7 August 1789 established the War Department, and prescribed in general terms the duties of the Secretary of War. There was no constitutional authority for the Commanding General of the Army separate and distinct from the President. No act of Congress had ever established the duties of the senior general of the Army, but the office had been recognized in various appropriations and other bills as the Office of the Commanding General of the Army. General Macomb, General Scott, General Sherman, and General Sheridan, all had had serious controversies regarding the rights and duties of the Office of Commanding General of the Army. In theory, this officer exercised great authority. His prerogatives encompassed disciplinary matters, control of military operations, and all

administrative matters except those of fiscal, recruiting, and supply nature which were to be controlled by the Secretary of War. Experience, however, had shown that the proper position for the senior officer of the Army on duty at Washington was not that of commanding general, a position which was practically impossible, but of chief of staff to the President. This indeed was the advice of General Schofield who, on becoming commanding general, addressed a letter to the President showing that his experience proved, without contradiction, the wisdom of surrendering all pretense "of being the commanding general."

Thus, the Spanish-American War drew attention to two grave deficiencies: the relationship between the Secretary of War and the commanding general with reference to command responsibility in the Army, and the relationship between the bureau chiefs and the Secretary of War to the almost complete disregard of the interests of the Army and the prerogatives of the general commanding the Army; and, the lack of preparation by the War Department for a war with a foreign power to be conducted on foreign soil.

With reference to the first, the issue was one of house cleaning which should have been done by the head of the household or his chief servant—the President or the Secretary of War. However, in a situation where the staff departments had been in operation as they were for 100 years, and with the sanction of law, there was little likelihood that any agreement would be reached among themselves to allow their authority to be superimposed by the Office of Commanding General which did not have legislative sanction. In this case, a reform was necessary in order to define the relationship of the Secretary of War, the bureau chiefs, and the senior general—be he commanding general or chief of staff—to the entire concept of command within the Army.

In the second instance, the issue is one of culpability with reference to the preparedness or lack of such for the war. Although many say that the War Department knew some 4 months in advance that the war was coming, few of them put the blame where it belonged. In fact, official Washington knew that trouble was brewing since 1873—the *Virginius* affair. The Cuban Revolution was quieted down and allowed to smolder until 1895 when it broke out again. During the entire period the Cuban junta had been operating in New York and it is only reasonable to assume that they were giving somebody in official Government circles all the information that was needed to conduct war on Cuban soil.

Let us take the period 1895 to 1898. If the War Department knew 4 months before the outbreak that war was inevitable, then is it not reasonable to assume that officials in the State Department knew war was coming as early as 1895? Is it not reasonable also to assume that if the War Department knew that war was coming, somebody in Congress also knew, and, therefore, the stimulus for war preparation should have come from Congress which had to appropriate the money?

It is difficult for any reasonable understanding of the situation to try to find the solution within the War Department. They were operating on a peacetime basis. They could see the handwriting, but how could they plan without the necessary funds? Congress also knew, and the State Department certainly must have known. When we are looking for examples of malfeasance or even neglect—the root of the situation should be sought, not the leaf of the plant. Congress was more at fault than the War Department.

True, the War Department should have had some plan in readiness. True, the staff departments should have had better planning with reference to supplies of all kinds. However, they could only do as

much as finances permitted them to do and no more.

To give a clear picture of the situation, the idea of the War Department should be separated in the mind from the staff departments. To say that Alger's War Department was inefficient is not altogether correct. He could do nothing at all to change the situation as far as the staff departments were concerned. This was a canker of long duration and even Elihu Root could have done little in 1898. The remedy lay only in the process of law and that remedy might never have been achieved if it had not been that Elihu Root was appointed Secretary of War.

President McKinley was not looking for a remedy when he appointed Root. McKinley was not looking for "anyone who knew anything about war or for anyone who knew anything about the Army." He wanted a lawyer to direct the government of the Spanish islands and Root was the lawyer he wanted. Perhaps it was fortunate that Root had no knowledge of military affairs for, because of this, he took office with the criticism of the Spanish War fresh in mind and unfettered by any previous connections with the military. Root soon realized that the War Department was in a bad way. He began to study the background methodically by reading volumes of material on the subject and talking with Army officers. He studied the findings of the Dodge Commission, as well as many other documents pertaining to that war and prior to it. As a result of his research, the Army seemed to him very much like a corporation run without a general manager or board of directors by the superintendents of the various departments of the business. The difficulty was not what to do, but how to accomplish it. As Senator Lodge pointed out in 1899:

Today, the system stands guilty of the blunders, delays, and needless sufferings and deaths of the war, and war being over, reforms are resented by patriots who have so little faith in the republic that they think that a properly organized Army of 100,000 men puts it in danger, and by bureau chiefs and their friends in Congress who want no change, for reasons obvious if not public spirited.

Root realized that any attempt to provide a "general manager" for these "superintendents" must be made cautiously. Therefore, prior to the issuance of his first annual report, he had tried to carefully prepare the groundwork for its favorable reception. He knew that the work he was so carefully maturing would meet stubborn, bitter resistance, and he also grasped the fundamental importance of the reforms that he contemplated. However, he also knew that reorganization must take place while the lessons drawn from the experience of the recent war were fresh in their minds. Here, Elihu Root merely reflected George Washington's observation of 1783.

It is the Army's job to be prepared for war. We must plan the courses of action to be followed if hostilities should break out. We must have plans for the best use of available resources and facilities in case war occurs now. We must also have plans for the best use of the resources which we can anticipate as being available at certain times in the future. Accordingly, we have long-range plans, and mid-range plans, as well as plans based upon our current capabilities.

General Charles L. Bolte

LIDDELL HART

Lieutenant (j.g.) John W. Walden, *United States Navy*
First Lieutenant and Gunnery Officer, *USS LST 603*

The views expressed in this article are the author's and are not necessarily those of the Department of the Army, the Navy Department, or the Command and General Staff College. —The Editor.

FROM the blood-soaked battlefields of World War I emerged a British soldier who was one day to gain world-wide recognition in the military field and be considered, by many, as the greatest of modern-day military thinkers; a man who was even to be ranked with the great militarists of all time, being termed the "Clausewitz of the twentieth century." The person we speak of is Basil Henry Liddell Hart, a retired captain of infantry. In spite of his modest rank, he has reached great heights as a military figure and exerted wide influence upon military thought—as is attested to by great statesmen, soldiers, and scientists, the world over.

Captain Liddell Hart, from his background of actual experience and years of extensive study of military history, has brought new light to the study of warfare in his many writings. In looking at Liddell Hart's works, one does not see the age-old military theorist who simply concerns himself with looking for newer and more effective methods of slaughter and destruction. Rather, one gets the picture of a man who knows of the futility and exhaustion of warfare and who, in his exhortations, has sought to make its practice more intelligent—bringing reason and logic to it from the truths of history—while, at the same time, working toward the abolition of warfare.

In his writings we see the products of a philosopher as well as a military scientist. As Captain Liddell Hart puts it: "I share the idealist's repugnance of war, but I have also a repugnance to their all too frequent disregard of reality. I feel that no true goal can ever be reached by propagating truths or half truths."

This last sentence describes the foundation of his work—truth. In all of his writings are seen the objectiveness of the historian combined with the thirst for knowledge and truth of the philosopher and scientist. He feels it his moral duty to probe the history of warfare and bring forth the true, clear picture of man's thoughts and actions through the centuries. He aims at projecting the film of past wars onto the screen of contemporary history in order to solve the problems of the present day with truths from the past.

In discussing the thoughts and writings of Captain Liddell Hart, we might refer to them throughout as products of a "great thinker" or "military genius," but Captain Liddell Hart has asked that we be more sparing in the use of such terms. He says: "Be more moderate! With me, it has been mainly a matter of seeing the obvious easier and sooner than other people, through keeping my windowpanes clear of dust and cobwebs, platitudes, and prejudices."

We need not necessarily look at him as a "great thinker" or his works as those of a creative genius. Rather, we must keep in mind that Captain Liddell Hart's works are based mainly upon the history of war as brought forth by a man with rare ability in thinking clearly and seeing the underlying possibilities in the lessons of the

past, and with the capabilities of applying them in an up-to-date, unbiased form.

Personal Background

To begin to appreciate the value of Captain Liddell Hart's military thought and writings, we must first know something of his background and see how he has grown to such a high position in the military field.

He was born 31 October 1895; received his formal education at St. Paul's School and at the University of Corpus Christi, where he began the study of history. In 1914, he was commissioned in the King's Own Yorkshire Light Infantry, and embarked for France the following year. As company commander—in temporary command of a battalion—he participated in the battles of Ypres and the Somme. Severely wounded in 1916, he was sent to a hospital where he put his period of convalescence to good use by writing a book on the recent Somme offensive. This book attracted the attention of some of the senior British officers of the time, and he was subsequently invited to join a historical section which was being formed.

In 1917, he wrote a study on the use of infantry—*New Methods of Infantry Training*—which was prompted by his experience in the war. Later, in 1920, he was officially called in to write the postwar *Infantry Training Manual*, and was able to put many of his earlier ideas into it, including his famous *Battle Drill*. Thus, at the age of 25, Captain Liddell Hart had already gained attention as a military expert.

After the war, he was still handicapped by his wounds, and was graded unfit for service in the infantry or tank arm. He was able to remain in the Army through his sponsor—General Sir Ivor Maxse—who secured him a position in the Army Educational Corps. Still his work continued to be mainly in training and tactics.

His health definitely prejudiced his Army career, however, and in 1924 he was invalided to the half pay or inactive list and later retired. Now a civilian, he decided to dedicate his life to the study of military science and history. He then undertook the job as military correspondent for the London *Daily Telegraph*. While with this newspaper, he also became editor of the Military and Military History Departments of the *Encyclopedia Britannica*. He remained with the *Daily Telegraph* until 1935, when he became military correspondent and advisor on defense for the London *Times*. During the period that we have covered, thus far, Liddell Hart was constantly gaining greater recognition in the military field through his books and articles on warfare. Many of his works were concerned especially with the mechanization of armies and the future of armored forces. He had formed a close friendship with General J. F. C. Fuller—the famous advocate of mechanized warfare—and many of their thoughts ran parallel. We might note that many of Liddell Hart's theories with regard to mechanized war were later to have great influence in the expanding German Army.

Captain Liddell Hart—from his background of actual experience and years of extensive study of military history—has introduced controversy as well as a more complete understanding of modern warfare

Recognition also spread to America, and it was in 1930 that General Hunter Liggett—the World War I Commander of the United States First Army—proclaimed that Liddell Hart brought to his work "a knowledge of war that few men possess and none excel."

In 1937, he became personal advisor to the new War Minister, Hore-Belisha, and undertook a program of army reforms. Many of his reforms met with opposition, especially from the Imperial General Staff and the Treasury. However, by 1939, many of his original reforms had been accomplished, much to the benefit of the Army if to the disgruntlement of the Army hierarchy.

In 1939, Captain Liddell Hart succumbed to exhaustion and was forced to retire to the west of England. His illness was brought about by overwork in finishing his book, *The Defence of Britain*, which he "tried to rush out as a last hour warning to our people against courses that seemed to me suicidal in the existing state of French and British armaments." During the 1930s, Liddell Hart had waged a constant campaign in awakening his nation to the impending dangers of war, and in urging preparedness.

Having regained his health, in 1941 he agreed to write occasional commentaries on the war for the *Daily Mail* while busying himself with other work. After the war, Captain Liddell Hart devoted his time mainly to collecting documents and writing preparatory studies for a history of the war. Two of these studies are *The German Generals Talk*—an account of his talks with the imprisoned German war leaders—and the most recent *Defence of the West*—which surveys present-day military problems. We might note that these and many of his other books have been read worldwide and have been translated into many tongues. In all, his works have been translated into more than 20 different languages. In 1947, he began an official history of the *British Tank Corps (1915-1945)*, and its part in the evolution of armored warfare.

An enumeration of other accomplishments would show that he was a Lees-Knowles Lecturer on military science at Trinity College, Cambridge (1932-33); in 1934, held a Leverhulme Research Fellowship; was one of the British Delegation at the International Studies Conference in 1935; was an advisory member of the Executive Committee of the League of Nations Union; was on the Council of the Society for Army Historical Research; and in the literary field, a member of the Association for Intellectual Liberty.

Now that we are acquainted with Captain Liddell Hart, his background and his career, let us examine his thoughts more completely, and attempt to see the wisdom and logic behind them, to see just what influence his writings have had upon modern military thinking.

In looking at Liddell Hart's writings as noble attempts to bring reason and logic to the study of war, while at the same time pointing toward permanent peace, let us note that this man has recognized his own limitations. In his words:

The history of mankind is the history of thought—of the gradual ascendancy of mind over matter: the subjugation of brute force by intelligence. That is why warfare, being indivisible from force, and at present even from brute force, can never be a fully intelligent practice.

However, even though we may not reach the final goal, we can still go very far in attempting to make war more of an intelligent practice. To accomplish this, Captain Liddell Hart starts by rephrasing the old maxim: "If you wish for peace, prepare for war" to "If you wish for peace, understand war." Expanding upon this, he reflects the very foundation of his work:

History has ample evidence of how often a move to preserve peace, or to restore it, has been paralyzed by so-called 'military

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reasons' that were not more than a rationalization of unreasonable impulses. Hence, we need to understand not only the causes but the conduct of war. This understanding can only be attained if we study war in a purely scientific spirit, with our minds free from any promilitary or any antimilitary bias which might impair our judgment and thereby nullify our deductions.

A good starting point in stating Captain Liddell Hart's ideas more specifically and showing their application would be at the top level—the level of grand strategy. Here is an important plane in the study of warfare, for grand strategy has to do with the national object in war, or the "war policy" of a nation. This is where wars start.

First, Captain Liddell Hart states that: "'War is too serious a business for the destinies of nations to be controlled by mere strategists. There is a need for a wider horizon of grand strategy which embraces the state of peace that lies beyond war." Grand strategy is not concerned only with winning the war, but with winning the peace. From this it is deduced that the primary object in any war is to obtain a better peace. Hence, it is most essential that war be embarked upon with constant regard to the peace desired. In other words, reason and logic of the highest degree must be applied when facing national conflict. Nations must not rush headlong into a conflict that may bring exhaustion and destruction for both sides —thoughts should be given to what victory might offer. For, "Victory in the true sense implies that the state of peace of one's people is better after the war than before. It is wiser to run risks of war for the sake *of* preserving peace than to run the risks of exhaustion *in* war for the sake of finishing with victory . . ."

History shows only too well the terrible aftereffects that war can bring—the utter depletion of a nation's manpower, its resources, and its finances—and how, in many cases, the peace which is finally gained can hardly compensate for the complete exhaustion that these nations have suffered in pursuing their national aims. No better example could be cited than the sorry state of many European countries after World War II.

We should conclude, then, that the national object of any nation in war should be nothing other than to guarantee that nation and its people a more "honorable, prosperous, and secure existence," and that object should be kept ever so constantly in mind.

What are Liddell Hart's objectives in warfare? His approach to this topic brings a new logic and thought-producing meaning. Basically, we must understand that Captain Liddell Hart does not agree with the concept of the "absolute war" as worshipped by Napoleon and by Clausewitz, who "analyzed, codified, and deified the Napoleonic method." His approach is above and beyond the "blinkered" conception that the national goal in war could be attained only by mass destruction. Instead, he must look for the true objectives of war, apply reason to the words of history, and determine what means should be used to what ends in warfare.

First, we will assume that in a time of stress the decision has been made to wage war. What does the normal citizen of the democracy—through his own commonsense —give as the national object in this war? As we have already seen, he would probably say: "To ensure a resumption and progressive continuance of what may be termed the peacetime policy, with the shortest and least costly interruption of the life of the country." In pursuing the object, therefore, a truth underlying Clausewitz's definition of war as "continuation of policy by other means" is that we must subdue the enemy's will to resist with the least possible human and eco-

nomic loss to ourselves. Hence, we have our first true objective.

Following this logic, Liddell Hart would go on to look for the most effective method of subduing the enemy's will to resist while ensuring the least possible human and economic losses to ourselves.

Clausewitz, despite his doctrine that "Blood is the price of victory," did recognize the existence of objectives other than the enemy's armed forces. His three general objectives were: the military power, the country, and the will of the enemy—with the first of predominant importance. But Liddell Hart contends that Clausewitz placed emphasis on the wrong points—his objectives in the wrong order. Liddell Hart states that "the *destruction* of the enemy's armed forces is but a means—and not necessarily an inevitable or infallible one—to the attainment of our goal." He would first, and above all, pursue the moral objective. This is to put the greatest of pressure on the minds of the enemy's people, his troops, and, above all, his commanders by all possible means.

The Indirect Approach

At this point we could well enter upon Captain Liddell Hart's "strategy of the indirect approach," for this is one of the keys to his over-all trend of thought, and its basic points lie in the strategic and tactical levels, onto which we have now entered.

The indirect approach is not a radical new scheme, but rather a method of dealing with all of the problems of man, built on an application of reason and logic to the lessons of history. It is the key to Captain Liddell Hart's way of thinking not only as a military man in the usual sense of the word, but as a philosopher. In it may be seen the scientist's search for the truth, and the philosopher's use of logic to gain knowledge. But as versatile as the indirect approach may be, we must confine ourselves to its military aspects, for it is in this sphere that it has been most widely advocated by Captain Liddell Hart.

Early in his career, Captain Liddell Hart—while studying a long series of military campaigns—came upon this concept and realized its superiority over the direct approach in military strategy. The general conclusions that he gained from his study were that:

More and more clearly has the fact emerged that a direct approach to one's mental object or physical objective, along the line of natural expectation for the opponent, has ever tended to, and usually produced, negative results. The reason has been expressed vividly in Napoleon's dictum that, 'the moral is to the physical as 3 is to 1.' It may be expressed scientifically by saying that, while the strength of an enemy country lies outwardly in its numbers and resources, these are fundamentally founded upon stability or equilibrium of control, moral, and supply.

The study of history's decisive military campaigns had shown that, with the exception of Alexander, the most successful and greatest commanders, when faced by the enemy in a strong position, seldom, if ever, had made a direct attack upon him. When circumstances provided no other choice, their direct attack failed. Also, history showed that the most able commanders had often gone to great extremes to avoid the direct attack—facing unfavorable conditions rather than risk a stalemate or the complete exhaustion of the direct approach. Examples of history "in which the indirectness of approach is as manifest as the decisiveness of the issue," run from those of Lysander in the Aegean in 405 B. C., to Hitler's mistakes and failures in World War II, and include such American campaigns as those of Grant at Vicksburg and Sherman at Atlanta.

A conclusion from history: The direct approach to a goal—physical or mental if

it follows the natural direction which your opponent expects you to take—never achieves anything but negative results.

Thus, following Captain Liddell Hart's train of thought, we enter upon an indirect approach in subduing the enemy's will to resist. To do this, one must look through the pages of history and see the folly and futility to the Napoleonic form of warfare and to realize that there are other means to our end than simply two enemy forces meeting head-on in the field of battle and causing mass slaughter and destruction. Rather, "it becomes transparently clear that our goal in war can only be attained by the subjugation of the opposing will." Consequently, the indirect approach calls for us to meet the enemy in the field, of course, but also we employ blockade, diplomacy, attack on population and industrial centers—in other words, we pursue the moral objective by preying on the *minds* of the enemy.

Captain Liddell Hart has condensed this doctrine into an enumerated listing which, as he says, "seems so universal, and so fundamental, as to be termed axioms." Most of them may be applied to tactics as well as strategy. They are:

1. "*Adjust your end to your means.*" When determining just what your object is, it is extremely important that "clear sight and cool calculation should prevail," and that confidence should not be exhausted in vain efforts.

2. "*Keep your object always in mind,* while adapting your plan to circumstances." It must be realized that every object may be gained by more than one method, but it is also important that every objective should contribute to the object.

3. "*Choose the line (or course) of least expectation.*" You should put yourself in the position of the enemy commander and try to see just what is the least probable to foresee.

4. "*Exploit the line of least resistance* . . . (In tactics this maxim applies to the use of your reserves; and in strategy to the exploitation of any tactical success.)"

5. "*Take a line of operation which offers alternate objectives.*" This can put the enemy into a dilemma "which goes far to assure the chance of gaining one objective at least, . . . and may enable you to gain one after the other."

6. "*Ensure that both plan and disposition are flexible—adaptable to circumstances.*" Plans should be farsighted and should foresee the action to take in the case of success, failure, or part success.

7. "*Do not throw your weight into a stroke whilst your opponent is on guard*—whilst he is well placed to parry around it."

8. "*Do not renew an attack along the same line (or in the same form) after it has once failed.*" A reinforcement on your own side is not enough because the enemy may also have been reinforced and may have gained moral strength from repulsing you.

Liddell Hart adds that an essential truth that stands out from these maxims is that "for success, two major problems must be solved—dislocation and exploitation."

General G. M. Chassin, former Commander in Chief of the French Air Forces in the Far East, agrees that from these truths:

A close study of military history certainly shows Liddell Hart's ideas to be, on the whole, sound, and without any doubt the American leaders in World War II would have been well advised to have put them into practice. As for us, we would certainly have avoided the strategic errors which reduced us to such a sorry state.

As an example of when the indirect approach was put to actual use and when such "strategic errors" were avoided, we might quote from a letter from Major General E. E. Dorman-Smith (Deputy Chief of the General Staff, Middle East in 1942),

written to Captain Liddell Hart in 1942. Dorman-Smith, in this tribute to Captain Liddell Hart's genius, writes:

I told you earlier that your ideas had influenced the course of events in Egypt in our favor at two crucial times between 1940 and 1942. For the plan of attack that led to the annihilation of Grazini's army at Sidi Barrani, and broke the first invasion of Egypt in 1940, was a perfect example of your strategy of indirect approach, while the defensive strategy and tactics that foiled Rommel's invasion of El Alamein in July of 1942 was more immediately inspired by it.

Continuing in the strategical and tactical field, we find that among Captain Liddell Hart's more important works was his program of army reform, conducted under Hore-Belisha in 1937. As we noted earlier, this program was subjected to much criticism and was greatly opposed in many circles, particularly by the Army itself. It was a great struggle to persuade the General Staff to accept many of his measures, and opposition was found in the Cabinet, also. However, although many of his original reforms were watered down, most of them were put into effect and much to the Army's benefit. Among the more important points of these measures were:

Strategical

1. The creation of Regional Strategic Reserves in the Middle East and Far East, and the development of local sources of equipment supply.

2. The adoption of the principle that the strategic reserves, both at home and abroad, were to consist predominantly of mechanized troops.

3. The formation of two armored divisions in the Regular Army at home, with a third to follow; also of two within the Territorial Army.

4. The complete motorization of the infantry divisions.

5. A doubling of the scale of the antiaircraft forces, and the centralization of the antiaircraft defense of Great Britain under a single command.

Tactical

1. The reorganization of the infantry divisions on a smaller pattern, increasing the ratio of fire power to manpower while making them more maneuverable.

2. The mounting of a proportion of the infantry in armored carriers.

3. The creation of light antiaircraft units for low-flying defense.

4. The creation of a research branch of the General Staff—for "thinking ahead."

Personal

1. A wide range of measures to improve conditions of service, and prospects—including time-promotion for officers; abolition of half-pay; better rates of pay and pension for officers and men . . .

2. Measures to improve professional efficiency—a lowering of the age of generals; a higher commanders' course; enlargement of the Staff College . . .

Needless to say, these reforms—the ones which were adopted—went a long way in modernizing an army that was tenaciously clinging to 1914 methods, and contributed a great deal toward readying it for the oncoming conflict with the German war machine.

In summing up some of the more important points of Captain Liddell Hart that we have discussed thus far, we find that he has thought of the sphere of grand strategy as a higher level of strategy, combining all resources of a nation, military, economic, and moral—their use being guided by the aim not only of winning the war, but of "winning the peace" as well.

In the strategical and tactical field, he has expounded his doctrine of the "indirect approach" as a major principle of war with emphasis on balance—keeping

one's own balance and upsetting the enemy's. He expounds on the real target in war as being the mind of the enemy commander, not only his troops, and that we should aim at paralysis in war, rather than simply destruction. We also have seen some of his consultative activities in which he brought forth a program of army reforms.

Among the many strategical and tactical principles that we have not covered, may be seen his "expanding torrent method" which was used with great success by the German armies, and his theories on "artificial moonlight" which was also put into successful operation by the British. We note that these and many of Liddell Hart's other concepts dwell upon a "baited-gambit" form of fighting which is a combination of offensive and defensive, or an elastic defense with riposte. Also, in these and all of his deductions may be seen the reasonable and logical extraction of truth from the history of warfare.

Mobility

In drawing conclusions concerning Captain Liddell Hart's status in the military field and the wisdom behind his theories, we must not overlook the fact that a basic point in all of his writings has been the importance of quality of force rather than quantity. From this stemmed one of his greatest crusades and some of his outstanding theories—theories which were to bring him renown and international recognition as a military expert.

The crusade we speak of was for mobility in modern warfare—mobility through armor and mechanization. It was brought out forcefully in many of his books such as: *The Remaking of Modern Armies*, *When Britain Goes to War*, *The Future of Infantry*, and others.

Basically, Captain Liddell Hart reasoned that without mobility in modern warfare, armies were not capable of offense, and, therefore, were only "useless channels of expenditure." "Without mobility, an army is but a corpse—awaiting burial in a trench." He takes as his motto, Napoleon's maxim: "The strength of an army, like the quantity of motion in mechanics, is estimated by the mass multiplied by the velocity."

It was as early as 1919 that Liddell Hart wrote about mechanization in future wars, and from that time on he, along with the great General J. F. C. Fuller, was the leading exponent in Great Britain of fast-moving armored forces.

Here again, his thoughts were not something radically new but were, rather, parallels drawn from the truths of history—an attempt to bring the conduct of past wars and campaigns into modern application. The successes in the past of the fast-moving horsemen of Genghis Khan and Sherman were transformed into the modern motor vehicle, and the old breastplates and helmets were molded into tanks. Drawing such similes somewhat diminished the opposition to ideas which appeared as new and revolutionary.

In his advocacy of mechanized and armored warfare, Liddell Hart was basically in accord with Fuller, but after the fundamental theories, his thoughts took a different path. Fuller took up the "all tank" trend which looked upon tanks as an independent force, separate from the infantry. To Fuller, the infantry was simply a force employed to occupy and protect areas already gained by the tanks. Fuller thought of tank warfare as becoming sea warfare on land, with tank fleets operating from an advancing chain of infantry held bases. "The infantry would act in a static way as a supplement, not as a complement, to the tank operations."

Liddell Hart approached the problem of future mechanized warfare from a different angle. Although he reached Fuller's conclusion that armored forces would be a dominant factor in future land wars, he, through "imagination from a basis of rea-

son," tried to conceive the role of conjunction between infantry and armor. In 1919, he wrote a paper on "The Future Development of the Combat Unit" in which he advocated the organization of units of infantry and tanks combined. They would be trained together as parts of the same unit, at the same time allowing the tanks to be grouped as separate units when circumstances required it.

He, strenuously, continued to advocate his mechanized theories which called for the development of "armored infantry" or "tank marines." Unfortunately, the various experimental mechanized forces which were organized in England never came up to Liddell Hart's specifications and, therefore, never met with any real success.

German Application

The Germans, however, showed a better understanding of Liddell Hart's theories, and, studying them most thoroughly, organized their mechanized forces with an eye to the relation of the foot soldier to armor. Indeed, the German *Panzer* divisions were patterned after Captain Liddell Hart's idea of an armored division and combining tanks with mechanized infantry. Their successes in their blitzkrieg conquests of Poland and France in 1939 and 1940 showed the wisdom of this organization.

Later, the Americans went still further when they developed the full tracked armored carriers. Finally, by the end of the war, the "tank-marine" or "armored infantry" concept had been firmly established —although the British Army, in which it originated, still lagged behind. Rommel stated that, "The British would have been able to prevent the greatest of their defeats if they had paid more attention to the modern theories expounded by Liddell Hart and General Fuller before the war."

We note that Guderian, the creator of German armor, considered himself a pupil of Liddell Hart and dedicated his memoirs, *Erinnerungen Eines Soldaten* (1950), "To Captain Liddell Hart, my first teacher in tank tactics and strategy, to show him the success of his school." In August 1939, Colonel Khandyeff—in an account of his period of attachment to the German Army —spoke of General Guderian's activities in developing his tank forces and said: "His gods were General Fuller and Captain Liddell Hart. Liddell Hart, he considered, was the best analytical brain in the world, and his articles, translated and studied, were discussed long before they would be vetted and sent from Berlin . . . "

Cavalry Penetrations

Perhaps Captain Liddell Hart's best work in the armored field was to show the lessons to be gained from the quick-striking cavalry campaigns of the past. In particular, he cited the campaigns of the United States Civil War in the west where cavalry forces under Forrest had struck out from their main forces with great effect, making deep penetrations into enemy country and disrupting his communications. With this in mind, as well as the Mongol drives of the thirteenth century and Sherman's marches during the Civil War, Captain Liddell Hart conceived and urged such lightning strokes by modern mechanized forces deep into enemy territory. These principles were not adopted by the British, but the Germans took great care in observing them and successfully applied them in 1940 as attested to by the penetrations of Generals Guderian and Von Manteuffel.

These principles were also used effectively by the American Army in France in World War II. Previous to the Normandy invasion, Liddell Hart talked to General J. S. Wood, Commander of the United States 4th Armored Division, and General George S. Patton, who commanded the Third Army. Patton was afraid that armored drives, such as the Germans used

in 1940, were no longer possible, but Liddell Hart talked of the Sherman methods in modern warfare on a large scale—"moving stripped of impediments to quicken the pace, cutting loose from communications, if necessary, and severing, instead of getting hung up in trying to overcome it by direct attack."

The argument impressed General Patton, and after the breakthrough in France he actually carried out his plans in "super-Sherman" style. Captain Liddell Hart later received a letter from General Wood, just as the United States 4th Armored Division reached the Seine, telling him how well his methods had worked.

Thus, Captain Liddell Hart's thoughts were projected into the field of armored warfare and a new twist effectively applied to the lessons of history with undeniable results. Unfortunately, it was the enemy in this past war who first realized the wisdom and truth behind Liddell Hart's concepts and who first applied them while *his own country* never did truly see the light, even up to the end.

Criticism

From what we have seen, thus far, of Captain Liddell Hart's thoughts, how they were conceived, and how, in many cases, they found effective application, one might easily conclude that his works have never been subjected to more than a nominal amount of adverse criticism or opposition. However, this would not be a true conclusion. At times, Captain Liddell Hart's writings have found many severe critics and opponents, and have been the subject of much controversy; many of his theories have found *great* unpopularity in various military circles. In particular, we have already noted the attitude taken in his own country regarding his thoughts on mechanized warfare and his program of army reforms. But these and others are only minor examples compared to the many unfavorable reactions that were created by his theories just prior to World War II and during that war. It was about this time that his critics rose to great numbers, and violent controversy raged over his writings which dealt mainly with the strategy that should be undertaken in dealing with aggressor Germany.

With the rise of Hitler and the rapid rearmament of Germany, the inevitability of war once more cast its shadow over all of Europe. Captain Liddell Hart was not slow to realize the great part his country would play in the impending war, nor the great dangers that Great Britain, along with France and other European countries, would face from the German war machine. Long before war actually came he urged the development of British armed forces. As the war came closer, he built up and advocated a definite form of military strategy which he believed the allies must use to stop German aggression.

His strategy, however, appeared to be of an unconventionally defensive or passive nature; a strategy of uncommitted, limited responsibility—one that could gain absolutely nothing and lose everything. Some understood it, but others, who could see nothing but "defense" or "passivity," refused to consider it and spoke out against it. It always has been true that the first word in the soldier's creed is attack, for only through attacking the enemy could victory be won. Later, after the fall of France and the Dunkerque evacuation, his theories were blamed by many for influencing the great military disasters that had befallen the allied nations.

In his own country, Liddell Hart's "defensive doctrine" found some of its chief critics in the persons of V. H. Germains and General H. Rowan-Robinson—two well-known military experts of the time. Also, the British military publication, *The Army Quarterly*, voiced violent opposition. Germains was of the opinion that the only way to win a war was to attack and conquer the enemy, and, consequently, he

urged an all-out continental war with the formation of a British expeditionary force of 60 divisions. This was in strong contrast to Liddell Hart's ideas. Rowan-Robinson—for a long time in harmony with Liddell Hart—rejected Liddell Hart's defensive theories and advocated offensive action.

American Reaction

In America, Hanson Baldwin, of *The New York Times*, looked upon and opposed the defensive methods which he found in *The Defence of Britain*, and "indeed, all" of Liddell Hart's writings. Also in America, Major R. E. Dupuy, in reviewing the book, *The Defence of Britain*, spoke with disapproval of Captain Liddell Hart's "fetish that defense is better than offense."

Later, after Guderian's *Panzer* forces had broken through the French defense, *Time* and other American publications were of the opinion that Franco-British strategy had been guided by Liddell Hart's theories and, consequently, centered much of the blame on him.

Hanson Baldwin implied that Captain Liddell Hart's strategy was responsible for the great defeats. In the book, *Makers of Modern Strategy*, which attempts to bring out a "broader comprehension of war and peace," and includes a section of Liddell Hart's "defensive" theories, Baldwin again condemned him and even implied that his "passive" strategy was responsible for Dunkerque. This book also makes the statement that, "It was Liddell Hart's view that the ruggedness of the terrain and the dense forests of the Ardennes country would make it unsuitable for large-scale operations," thus attributing the German breakthrough in that sector to Liddell Hart's influence.

But what were Captain Liddell Hart's theories? Did he actually advocate a passive type of war—one which would not commit British forces to battle? Did his thinking influence the early military disasters in France? Basically, we could answer that Captain Liddell Hart's theories were of a defensive nature and could rightly be construed as such. Yet, too, we note that his "defense doctrine" was much more than a simple definition of this term would imply. His theories were actually of a deeper, more farsighted nature—again, a set of thoughts built of reason and logic with the history as their foundation. He definitely did *not* advocate a passive strategy. His influence was *not* the cause of the German breakthrough in the Ardennes and the enforced evacuation at Dunkerque.

Military Preparedness

With regard to military preparedness, Captain Liddell Hart constantly urged for the development of air and sea power, and, as for land forces, the concentration upon quality of force rather than quantity. He urged that conscription should be done away with, and that Great Britain should build her land forces around a small, well-trained army with modern equipment. Thus, he wanted to do away with the conventional mass army that could be of little effect in modern warfare, and produce a smaller, highly mobile army which could meet any enemy effectively at any point. Needless to say, air and sea development lagged behind his desires, conscription was not abolished, and Liddell Hart's highly mechanized, well-trained divisions never came fully into being.

All of his preparedness measures led to his ideas concerning strategy, which were based upon the relationship between attack and defense in modern warfare; the success in the past of the traditional British form of warfare; and the true aims or objects of a democracy in any war with an aggressor nation.

The main points that were emphasized in Captain Liddell Hart's prewar writings about the relation between attack and defense were:

1. The power of modern defense to with-

stand frontal attack in the old style—by the methods then orthodox.

2. The necessity of developing new methods—armored mobility, night attacks, indirect approach—if the offensive was to have a chance of overcoming the defense.

3. The need for us to develop a new defensive technique—of mobile defense and riposte by armored forces—to counter the offensive advantage which the aggressor was bound to enjoy at the start of a war, and check his blitzkrieg. (Once it was clear that the Germans had a long lead in the new offensive instruments—tanks and aircraft.)

Another of the basic points which he continually expounded was that in order for modern armies to enjoy a successful offensive, they have to have an advantage of 3 to 1 in power units. This was backed by such historical examples as the successful German offensive in World War I, and the Abyssinian campaigns. Later, this concept was proved by the German *Panzer* forces that overran France.

Captain Liddell Hart stated that he "always argued against static or passive defense, and for an 'offensive-defensive strategy.' 'This implies in the military sphere an active and mobile defense, in which the effect of direct resistance is extended by ripostes, both strategic and tactical, as well as by continual harassing action.' "

The argument for the offensive he summed up very nicely in *The Defence of Britain:*

The case for the offensive is so obvious that it can be expressed very briefly. Indeed it can be epitomized in a single sentence—only by the offensive can an enemy country, or position, be occupied and its surrender compelled. It is thus the only way in which a war, or a battle, can be won in the precise sense of the term. Furthermore, the offensive has great psychological advantages as a means toward this end—because it keeps the initiative over the opposing command, and acts as a tonic to one's own troops so long as it produces results proportionate to the expended.

But what is victory? What does it mean for a war to be "won"? As we saw earlier, the war aim of a nation should be to gain a better peace, and true victory could only be considered as such if ". . . the state of peace of one's people is better after the war than before." In gaining our true victory and pursuing our basic aim:

. . . the advantage that rests with defense in modern war is accentuated by the difference of aim between an aggressor and those he attacks. For him to succeed, he has only to conquer. For them to succeed, they have only to convince him that he cannot conquer and that continued effort will bring more loss than gain. They are thus able to wage a far less exhausting kind of war.

We cannot help but see a great deal of logic behind such statements.

As further justification for a form of warfare other than that of mass armies meeting on the battlefield, Captain Liddell Hart referred back to the questionable victory that was gained in World War I using such strategy. He also showed the successes in the past of the traditional British form of warfare through limited liability—their use of sea power to conduct blockades and strangle their enemies economically; their successful use of "comparatively small expeditionary forces to strike at the enemy's vulnerable extremities or to cement any promising collection of allied forces." True, Great Britain had won many offensive victories—Crecy, Potier, against the French—but it was only through a defensive action, in the first place, whereby the enemy's supplies and manpower were worn down.

In pursuing such forms of offensive-defensive strategy in a war with Germany,

Captain Liddell Hart urged that blockade and economic warfare should be widely used with the Navy remaining the predominant offensive weapon. A small British expeditionary force consisting of three outstanding armored divisions should be sent to France at the outset, but held as strategic reserve to meet the enemy wherever he presented a strong threat.

This form of "limited liability" was greatly opposed by British and American military publications, although, oddly enough, the *Revue Militaire Generale Francaise* supported such a doctrine. The British, as we noted earlier, never trained or equipped any such mechanized divisions to support such strategy, and, as for the forces that were sent to France:

The French General Staff never did see fit to entrust to them an important post in the line of battle, such as placing them on the left wing. It merely provided for them a narrow loophole between the armies of Blanchard and Giraud, from Wavre to Louvain, within the plan of the Dyle maneuver.

Although those armored forces that were available did not follow the strategical concepts laid down by Captain Liddell Hart, the enemy strictly adhered to them and thereby justified his theories. In America, "Guderian's all too successful application of my ideas for a new offensive technique was widely regarded as having proved me wrong, and it was not realized that the French and British chiefs had been as deaf to my advice about the antidote—the suitable defensive countermethods—as they had been to my new offensive theory." But in Europe, "such criticism was almost nonexistent—they better understood the underlying realities. In France and Switzerland, for example, the events of 1940 were at once hailed as the vindication of my arguments."

As stated before, the German breakthrough in the Ardennes was attributed by certain authorities to the influence of Captain Liddell Hart's theories that this section formed an impregnable barrier through which no large enemy force could pass. Actually his critics on this subject labored under a misconception.

Captain Liddell Hart was definitely acquainted with the Ardennes, having made a tour of this section in 1928 and again in 1938. These explorations had led him to disagree with the view that consistently prevailed that the Ardennes formed an "impenetrable massif." He brought this out in many of his books, like *The Decisive Wars of History* (1929), *The Real War* (1930), and *Foch* (1931). In *The Defence of Britain* (1939), he devoted much space to this subject, pointing out that the Ardennes did *not* necessarily form a natural barrier that could not be penetrated, but, rather, that it possessed excellent natural defensive potentialities—with the proper emplacement and the proper usage of defensive forces, a vastly superior army could be held easily at bay.

Unfortunately, the French Staff not only continued to cling to the 1918 delusion about the impassability of the Ardennes, but repeated the 1914 mistake of failing to push forward sufficient troops to hold the defiles. Worse still, there was no serious attempt to bomb them from the air. From the German accounts, it is abundantly clear how much their successful passage owed to these omissions. Even without any interference, the advancing forces got in a particularly bad jam in crossing the Semois.

Thus, we have answered our questions and answered some of Captain Liddell Hart's critics. We have shown that he did not advocate a passive war, rather he urged an extremely logical offensive-defensive type of strategy with "indirect," rather than truly "limited," methods of subduing the aggressor. Above all, his influence upon the Franco-British strategy

was not the cause of the Ardennes breakthrough and the disasters that followed. Perhaps the allies did lend an ear to his preachings, but if they did attempt to use any of his concepts at all, it was in a very dubious, half-hearted way that was typical of the indecision and confusion that reigned among them.

At this point, we might well wonder what the history books would have told of World War II if Captain Liddell Hart's doctrines had been completely and wholeheartedly carried out, and what the present-day military and economic situation would be in Europe and the rest of the world.

In our study of Liddell Hart, we have seen something of his life, his thoughts, his influence, his critics, and, perhaps by now, we could consider him worthy of the title "Clausewitz of the twentieth century." But if we used this title, it should be only in a limited sense. True, the importance of his writings, his influence, his philosophical approach to the study of warfare could be called Clausewitzian, but the final conclusions of these two men differ greatly. Liddell Hart's ideas might be considered to be on a much different plane than those of Clausewitz.

We have seen that Liddell Hart has recognized the weakness behind Clausewitz's form of "absolute warfare" and the mass slaughter and destruction that is coincident with it. From a background of experience and scientifically objective investigation, he has seen the futile, indecisive exhaustion that warfare brings, and has tried to overcome that with reason and logic of the highest degree. This aim has spread from a grand strategic concept down to the levels of strategy and tactics. We could not help but agree with his most logical concepts of grand strategy of "war policy," as we could not help but see the methodology behind the "strategy of the indirect approach." Certainly one could understand considering these concepts, above those of Clausewitz, which are derived from his maxim that "blood is the price of victory."

Liddell Hart's writings have already found their place in military history as has been proved by the words of great men the world over. Lloyd George regarded Liddell Hart as "the highest and soundest authority in modern war." His works have been acknowledged as the guides for Guderian, Rommel, and many other famous soldiers—by the leaders themselves. As General L. M. Chassin aptly expresses it: ". . . whatever happens in the future, Liddell Hart's reputation as a military writer is secure . . . we must bow before his knowledge of history, his broad, world-wide vision of strategy, the sound and lucid expression he has given to the principles of war . . ."

A study of a great man and his thoughts . . . it is not at all impossible that future generations may someday read of a "Liddell Hart of the twenty-first century."

The Army has ever sought to substitute machines for men on the battlefield. In the minds of American commanders, the preservation of human life always takes precedence over the hoarding of inanimate matériel. But what must be recognized, if the Army is to continue its progress in advanced weapons, is that the complexity of these weapons also implies that the quality of manpower required to operate them must be of the best.

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The Development of Esprit

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Because of the apparent misunderstanding of the scope of this subject, it is reasonable to commence this discussion by determining the size of the military unit, which, within itself, is primary in the development of esprit de corps. Much has been said—and even more written—about the "magnificant esprit" of particular armies or divisions. However, the character of a large body of men cannot be other than the product of its component units. Because of this, a discussion of the development of esprit should start far below the level of the army, the division, or even the regiment.

The basis of the subject is the soldier. This, in itself, is a surprising thing, because, of late, he has been confused with swimming pools, pay raises, divisions and armies, and the Troop Information and Education Program. If Webster's definition of the term esprit is correct, the "members of the group" are the subjects of the matter we are considering. The members of the group, of course, are individual soldiers.

The soldier eats, sleeps, and derives recreation as a member of a company. He is rewarded, punished, and trained as a member of that company. It is within the companies that esprit is developed, and the many headquarters that exist above the company level can accomplish little in the development of esprit other than through supervision and through the provision of logistical support. The higher commander who demonstrates the human touch, who requires and secures exacting performance and good leadership from his subordinates, and who is successful in providing reasonable logistical support for his troops will be successful in developing esprit within his command—whether it is a battalion or an army. This successful commander will apply praise, rebuke, decentralization of authority, high standards, and clear guidance judiciously in controlling his subordinates.

Praise

Since it is desired to instill a common spirit of enthusiasm, devotion, and jealous regard for its honor in the members of a group, the members of that group, as a body, should have cause for pride. Any action or statement on the part of the leader that could be construed as censure of the group as a body should be carefully assayed beforehand. Censure should seldom be undertaken except as a part of a critique, and then only in conjunction with praise of the group for those things that were particularly well done. In the interest of instilling common spirit among group members, all commanders should seek opportunities to praise group effort and their praise should be sincere. No platoon, company, or battalion can be entirely undeserving of praise.

An aspect of group praise that is frequently overlooked is that of publicity. Too often this media is used to publicize the commander rather than the troops and their accomplishments. The company commander, in particular, should ensure that the activities of his company receive note

in both service and civilian news agencies. Almost all higher commanders encourage such activity on the part of subordinates. When news of his company is published, the wise company commander will make sure that the men of the company read of their accomplishments. The bulletin board, properly embellished, can be used to accomplish this.

Most readers will agree that the judicious application of praise has contributed to the enviable esprit de corps enjoyed by the United States Marine Corps.

Rebuke

Since no person or organization is perfect, there will always be things that are wrong or that are being done wrong in any organization. One of the primary responsibilities of the commander is to apprehend and correct those things that are incorrect and, because he is in such close proximity to the troops, it is the company commander who will observe most of the mistakes that are being made. He must correct the mistakes of his subordinates forcefully and on the spot. He must require that his junior leaders fulfill their jobs and accomplish the corrections that are within their provinces.

Rebuke must be applied frequently in the correction of minor transgressions or mistakes. It should seldom be overlooked in the instance of failure on the part of subordinates to assume their responsibilities. It should be impartial, individual, administered in private, and—where required—memorable. We should not forget that, although rebuke may temporarily lower the morale of the individual, its judicious application is a means of raising the proficiency and, hence, the esprit of a unit.

The dangers of rebuking a company—or any other organization for that matter—as a group are worthy of some discussion. In the first place, individual members of the company will probably not be guilty of the failure for which the group is being censured. Secondly, such mass censure does not specify the failure made by the individual and he, therefore, fails to gain full recognition of what he has done wrong. Lastly, if the entire group erred, the leader probably failed to give adequate instructions—or failed to see that the instructions were carried out.

Surely, in order for esprit to be developed within a unit, it is most necessary that the proficiency of the unit be established and maintained. This can be accomplished only by a program of constant training and correction, and the effect of rebuke in achieving the standards that will inspire pride cannot be overlooked. Lastly, the dangers inherent to mass censure should never be forgotten.

Decentralization

The excessive centralization of control and authority is an enemy of esprit. As it progresses, it deprives the squad or section leader, the platoon leader, the company commander, and, finally, the battalion or higher commanders of both authority and prestige. It also increases the requirement for reports and increases the workload of administration. It reduces the incentive of the individual soldier to progress upward in the noncommissioned officer ranks or to become an officer.

On the other hand, complete decentral-

The commander who is successful in developing esprit de corps in his unit must apply praise, rebuke, decentralization of authority, high standards, and clear guidance judiciously in controlling subordinates

ization of control is not compatible with efficiency or co-ordinated action. Carried to its extreme, complete decentralization would result in a group of autonomous individuals with no organization whatsoever.

From these considerations, it becomes apparent that the problem of the unit commander is to determine the degree of decentralization that he is to effect. He cannot do everything himself and, if he fails to relegate tasks and responsibilities to his subordinates, he will not only fail to accomplish his missions, but he will also damage the prestige and authority of his subordinates. If the commander relegates tasks and fails to supervise their proper accomplishment, results will not be favorable and the efficiency of his unit will be low.

As a general rule, esprit is enhanced by a program of decentralizing the performance of tasks to the maximum extent consistent with the training of subordinates, by supervising the performance of the relegated tasks, and by demanding that the unit's activities be performed promptly and well.

Standards

In developing esprit, it is important that each individual has confidence in the fact that his unit is an efficient one—that his unit can accomplish its assigned tasks creditably. It is also necessary that the individual see in his surroundings evidence of the fact that his unit is efficient. The soldier participates in training and in training problems. He knows whether or not the training is well organized and whether the problem is a success or failure. In the same way, he knows whether or not his food is well prepared, whether or not the company kitchen and company area is clean and sanitary, and whether or not the vehicles, arms, and equipment of his unit are cared for. He knows these things whether his company is garrisoned in a modern barracks or living in tentage.

This being the case, the highest standards of maintenance, of police, of mess management, and of training proficiency are imperative in the development of esprit. It is a difficult task to cause a unit to adhere to a standard, *but a high standard can be maintained about as easily as a mediocre one.*

Guidance

The natural curiosity of the human being causes him to want to know what he is doing and what his group is doing. Of all humans, the most curious are the members of the species "*Homo Sapiens Northamericanus,*" who want to know not only what they are doing but why it has to be done. They naturally look to their leaders—squad, platoon, company, and even battalion—for this information and their feelings of confidence are enhanced when this information is provided. From this fact it follows that battalion and, to an even greater degree, company commanders should set up a program enabling them to keep their men informed of the past, present, and future activities of their unit and of the progress that the unit is making.

Beside its value for the dissemination of information, the voice is one of the few means that the leader has to control the activities of his subordinates. A few of the men in any organization will fail to respond to the guidance offered by the best of leaders. However, if the leader does not tell his men what he wants them to do and

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what standard of conduct he expects of them, he can expect no response whatsoever. In the interest of esprit and of developing an efficient organization, the leader should speak to his men as a group as often as his particular position of leadership permits him to do so. He should make careful preparation for these talks and should regard them as an opportunity.

Summary

The responsibilities of command are very great at any level. There is much to be done at the company and battalion level—where the considerations that have been discussed are most applicable—and many of these fundamentals are sometimes forgotten. The employment of praise and rebuke, the degree of decentralization to be accomplished, the maintenance of standards, the accomplishment of supervision, and the counciling and guidance of subordinates are fundamentals of leadership. It is easy to overlook them, but, when a commander overlooks these fundamentals, he does so at the sacrifice of his command's esprit.

The importance of this subject is manifest. There are few units in the Military Establishment today in which no improvement in esprit is possible.

Two basic requirements derive from these last two elements, TRAINING and LEADERSHIP.

First, we must have an Officer Corps comprising a professional, long-term cadre, adequate both in size and in quality. This is the heart and soul of any military organization. None will ever be better, or even quite as good, as its Officer Corps. This is the great reservoir of character, of devotion to duty, of loyalty, of professional competence by which tradition is planted and nourished.

If we are to have this, we must have in our professional officer cadre a cross section of the nation's life and a fair share of the best the nation produces in character, intellect, and culture. If we do not have this, if the officer cadre is not representative of a cross section in America, it will not, in the long run, have that support of the American people which it must have to accomplish its mission.

Next, the requirement for a Noncommissioned Officer Corps closely follows that of the Officer Corps. The Noncommissioned Officer Corps also must have a professional cadre of career personnel who are inspired by, and emulate the standards of, the Officer Corps.

General Matthew B. Ridgway

LOGEX
PRACTICAL EXPERIENCE IN LOGISTICS

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The views expressed in this article are the author's and are not necessarily those of the Department of the Army or the Command and General Staff College.—The Editor.

IN MAY of the past several years, approximately 3,000 military personnel have gathered in Virginia to take part in LOGEX—the Army's annual logistical exercise—the only exercise of its kind in which the technical and administrative services are brought together at staff level.

LOGEX is one of several exercises planned by the Department of Defense to achieve the degree of armed readiness necessary to meet the demands of national security. The purpose of the week-long map maneuver can best be presented by quoting the directive from Army Field Forces for the 1954 version of LOGEX:

To afford student officers of the schools of the Technical and Administrative Services, and selected Army Reserve personnel, practical experience under assumed combat conditions in planning and conducting the operations of those services in an active theater.

To require those students to apply to their participation in the exercise the instruction received at their schools, especially in the interservice team-play necessary in the detailed support of Army, Navy, and Air Force.

To stress the importance of maintaining continuous logistical support, particularly under adverse conditions, and with the employment by the enemy of modern mass-destruction weapons, including atomic, chemical, and biological.

With that purpose in mind, every effort has been made to make the problem as realistic as possible and to provide the maximum amount of training to the participating student officers and Army Reservists.

Naturally, the emphasis in the problem is on the technical and administrative services, but the Departments of Navy, Air Force, and State each has sent several representatives to add realism to the exercise.

Participating Personnel

The services which sent personnel to LOGEX-54—and the same services have been participating for the past several years—either from their schools, reserve units, or other sources were the Adjutant General Corps, Army Security Agency, Chemical Corps, Counter Intelligence Corps, Engineer Corps, Finance Corps, Judge Advocate General Corps, Army Medical Service, Military Police Corps, Ordnance Corps, Quartermaster Corps, Signal Corps, Transportation Corps, and Women's Army Corps. The Command and General Staff College and the Army General School also sent faculty representatives.

The agencies mentioned above provided 1,000 student officers, 500 control officers or "umpires," and 600 enlisted men—a total of about 2,100 persons—who actually

"played" the problem. Supporting the "players" were the 313th Signal Operations Battalion of Fort Meade, Maryland, the Food Service Group from Fort Lee, Virginia, and Camp Pickett units which brought the total LOGEX-54 participants to approximately 3,600.

The preliminary setting for the map maneuver this year was much the same as it has been in previous years and is based on the invasion of southern France during World War II. Picture, if you will, a Type Field Army pushing northward along the southern Rhône Valley of France to wrest the friendly country from an aggressor who has overrun most of Europe. Supporting the Army is a Type C Logistical Command.

In over-all command of the operation is the Commanding General of the Mediterranean Theater of Operations, with headquarters at Algiers, North Africa, and with a liaison group at Marseille. Under his command are the Theater Army, Twelfth Tactical Air Force, and Navy Fourth Fleet—with subordinate commands under each. In the Theater Army, we find a Type Field Army (Thirteenth Army), a Logistical Command (15th Logistical Command), and a Replacement Command (14th Replacement Command).

The Mission

To accomplish their mission, these forces—as a Task Force—launch an invasion of southern France on the imaginary date of 1 March, and push northward toward a link-up with allied forces pushing eastward across France from the Cherbourg and Brest peninsulas. The plan calls for the employment of three corps abreast, over terrain generally favorable to military operations.

In a steady advance, the three corps liberate a number of Free French Forces who, in turn, form their own units or join United States units in the push northward.

Resistance after the invasion gradually stiffens, but continued pressure by United States troops and the guerrilla forces, against an aggressor with greater manpower potential, advances the front line to Chambéry-Vienne-Givors-St. Étienne by 30 April—60 days after the invasion.

It is along this line, during the period 1-2 May, that the Army consolidates its gains and conducts preparations for the capture of the next objective, the city of Lyon.

Mass Reassignment

On 3 May, the players stepped into the staff positions and carried on the advance. Consider that an unprecedented mass reassignment of personnel became effective 3 May, with officers newly arrived from the technical and administrative services now occupying positions in the special staff sections of Thirteenth Army and Logzone (the logistical command area), and in the headquarters of certain of the larger service units of these two major commands. These staff sections and headquarters were adequately manned in order that the individual officers assigned to play certain positions therein were able to function normally and realistically. In these two major headquarters, the general staffs were not manned by student officers; however, the normal staff relationships were maintained between personnel of the general and special staff sections.

All positions in the Headquarters, Mediterranean Theater of Operations, in-

LOGEX, the Army's annual logistical exercise, is one of several exercises planned by the Department of Defense to achieve the degree of armed readiness necessary to meet the demands of national security

cluding Theater Army, Navy, and Air Force, were filled by members of the staffs and faculties of the Command and General Staff College, the service schools, and by Navy representatives. Likewise, staff and faculty members of the service schools and the Army General School filled the posts at headquarters of Thirteenth Army, Logzone, and the Replacement Command. All of these officers, although actually umpires, were known to student participants by their staff position titles.

The units under the student players were also represented by umpires, and a chain of command went from the umpires representing lower units through the student players to higher headquarters. A special umpire chain of command went from the umpires representing lower units to those umpires at higher headquarters, thus giving the umpire officers means to confer concerning the actions of the student officers.

Like some other maneuvers of this type, LOGEX has been carried out by having the umpires introduce problems, through messages and reports, for the student officers to solve. Messages used during the first few days of the problem generally caused the students to carry out continuous routine support of the combat units. But as the problem developed, the umpires submitted more and more messages to create special situations which differed from routine matters. The student officers had no idea what was coming until they received each message. Neither did the umpires know what decisions the student officers would make and what actions they would take. Thus, the umpires had to consider every course of action so that they would be prepared to interject a new and practical situation.

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The reader should stop at this point and visualize this staff level support as it was carried out in a group of about 35 buildings at Camp Pickett, with the players seated at desks in cubicle divisions of the buildings. Unrealistic, you say? Well, yes—inasmuch as the 35 buildings were quite far removed from the sloping banks of the Rhône. But no—because all the planning and co-ordination necessary to support a Type Field Army were present, just as if the players had been planted at various headquarters throughout southern France. And since possibly every situation normally encountered—and more—during an undertaking of this nature was posed to the student officers this year—as it has been in years past—the exercise achieved its mission as a training vehicle.

Each year the many cubicles have been linked by a communications network, consisting of 3 communications centers, about 700 telephones, and 35 teletypewriters. A message center in each headquarters provided for delivery of the many messages involved. To give an idea of the volume of communications in LOGEX-54, about 140,000 telephone calls, 3,500 teletype messages, and 20,000 letters and memorandums were handled by the 313th Signal Operations Battalion and the message centers.

Enlisted men have been utilized to operate the communications network, as well as to play the parts of administrative assistants and clerical personnel.

The time element has also entered into LOGEX. Each year since 1952, when the exercise was moved to Camp Pickett, the Transportation Corps has operated a Movement Control Board on which has been traced the movement of highway, rail, inland waterway, and air (except helicopters) transportation. Truck convoys and trains were moved a specified distance each hour over the simulated terrain of southern France, thus permitting

their movements to be followed or controlled. Supplies could not move from the port of Marseille to the front lines with a snap of the fingers. Rather, it took as many hours or days as the distance warranted.

Another boon to realism in the problem has been a reconnaissance and information building containing valuable data on the invasion area, and to which players could go to obtain data normally available by on-the-spot reconnaissance. Here, also, the time element was important, as players were required to give advance notice of a desire to visit an area, and were not permitted to enter the reconnaissance and information section until time of travel from their map location to the area they wished to study had elapsed.

Lessons Learned

The lessons learned by the student officers in LOGEX have proved invaluable. Many who have taken part in previous exercises and have been sent overseas have cited that the map maneuver has enabled them to perform their overseas jobs better. The student officers had to keep the supplies flowing and the services going, even during the times they had to solve special problems interposed—thus pointing out to them the necessity of maintaining continuous logistical support in a combat situation. The student officers have not been able to devote full time to solving the problems while forgetting about the routine tasks—the umpires have seen to that.

In the classroom, the student officers could get little taste of the interservice relationships with which they would someday be concerned. In each LOGEX exercise, no student officer could escape coordinating with other student officers of different services to complete his job. The emphasis each year has been to present situations which involved as many services as possible.

Another feature of LOGEX, during the past 2 years, has been the introduction of an aggressor who utilizes chemical, biological, and radiological warfare devices. Atom bombs have been dropped by the aggressor and the student officers have learned, in a measure, to cope with the problems evolving from such tactics. Thus, LOGEX has been keeping up with the latest in modern warfare doctrine.

The new concept that each army commander in the field shall have a political advisor on his staff has also been taken into consideration—State Department officials have filled these roles each year.

Historical Background

The current series of logistical exercises developed from an exercise conducted in 1947 at the Quartermaster School, Fort Lee, Virginia. The Commandant of the school was dissatisfied with the practical training his advanced officer students were receiving, so he directed his staff and faculty to set up a hypothetical situation, in the form of a command post exercise, in which student officers were assigned to fill the various Quartermaster staff positions.

The outcome of the Quartermaster exercise was satisfying, insofar as training in intraservice co-ordination was concerned, but it left unanswered the question of interservice co-ordination. To overcome this deficiency partially, the Transportation School and Quartermaster School took part in a combined Command Post Exercise in 1948 at Fort Lee. The exercise proved to be an outstanding success—so much so that the Department of the Army issued a directive to the effect that as many as possible of the other service schools would participate during the following year, and so the logistical exercise, as we know it today, was born.

Some 10 service schools took part in that 1949 exercise, which went under the name of Exercise LOG LEE. Again the

exercise was a success, and it provided an excellent training ground for developing intraservice and interservice co-ordination.

In 1950, the Air Force and Navy joined the exercise which was called LOGEX for the first time. That year the map maneuver was held at the Engineer School at Fort Belvoir, Virginia. It served as a testing ground for the new logistical command structure which had just been developed.

The 1951 LOGEX was not held, because of the outbreak of hostilities in Korea, but in 1952, the exercise was reinstated and conducted for the first time at Camp Pickett, where it has been held each year since. Because the Army has announced plans to close Camp Pickett this summer, the site for the 1955 version of LOGEX is unknown.

Conclusions

Since the exercise is primarily a training vehicle, it has not been directly responsible for many changes in Army doctrine. However, it has assisted in resolving many problems between the technical and administrative services which otherwise might have gone unheeded until discovered in an actual operation.

Best of all, the exercises have enabled student officers to be more cognizant of their jobs and the interservice aspect of them. The engineer officer knows a little more about repairing a bridge. The quartermaster officer is more aware of his reliance on the Transportation Corps' vehicles. The signal corps officer better understands where communications are most needed. And on and on we could go.

As General J. Lawton Collins, then Army Chief of Staff, said in 1952:

The Army's monumental logistical achievements in Korea re-emphasized our sound doctrine of guaranteeing that our front line troops receive the right supplies at the right time, and at the right place . . . LOGEX-52 is a splendid opportunity to develop further our doctrine and to provide conditions for realistic logistical training. For the cost and complexity of modern warfare demand prudence and efficiency in every rank.

All of us still have a lot to learn about conducting oversea wars and supporting dependent allies. Scrutinize all recent historical examples with a most critical eye and you will find that our training of future commanders has not prepared them to cope with their logistic problems as skillfully as they cope with tactical problems; in fact, many of them have displayed ignorance and inadequacy which, if continued, can only result in an indefensible proportion of waste, extravagance, and paralysis.

Lieutenant General Williston B. Palmer

THE MISSION OF A CORPS IN GERMANY

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The views expressed in this article are the author's and are not necessarily those of the Department of the Army or the Command and General Staff College.—The Editor.

A CORPS, by definition a tactical headquarters, has many and varied tasks in Germany. Organized under Table of Organization and Equipment 100-1, the corps is intended to be a tactical headquarters and is intended to be free of any encumbrances caused by the normal administrative load of its attached units. This is hardly true today of the operational corps in United States Army, Europe (USAREUR). The mission of the VII Corps in USAREUR today is, of necessity, much different from that anticipated by its table of organization and equipment, and certainly different from the corps mission anticipated when Table of Organization and Equipment 100-1 was reduced by Department of the Army Circular 10 (Table of Organization and Equipment 52-1).

It is my intention, at this time, to present the many and varied missions assigned VII Corps. At the same time, I do not intend to discuss the pros and cons of the mission, but rather hope to present here the picture as it now exists. Certainly the missions being performed by corps today will cause many members of a wartime corps to wonder if full exploitation of the personnel available during World War II was being made.

The G3 Section

The core, or heart, of any tactical headquarters is the G3—Plans, Operations, and Training—Section. It is worth noting, at this time, that there is no provision for a training section, as such. The training functions are carried out by the G3 Air, assisted by one or more liaison officers normally assigned to the chief of staff section. The G3 Air, in performing this training function, has a multitude of details to consider and tasks to perform. The tasks I would like to point out are performed for the attached units of the corps to include all infantry divisions, artillery groups, armored cavalry regiments, armored divisions, and the miscellaneous units so necessary to the successful accomplishment of the primary mission—preparation for combat. Enumeration of the major tasks performed by the G3 Training Branch of a corps is a major task in itself, however, I have attempted below to enumerate the most important of these.

1. Publication of training directives, circulars, and memoranda implementing similar directives of higher headquarters.

2. Allocation of range time and ranges for two major training areas—totaling approximately 120,000 acres.

3. Conduct of battalion tests for attached artillery, infantry, armored cavalry, tank, and armored infantry battalions.

The many and varied missions which are being performed by corps today may cause many members of wartime corps to wonder if the fullest utilization was made of the personnel of a corps during World War II

4. Conduct of Army Training Tests for all corps organic and attached units.

5. Conduct of annual training inspections for all attached units.

6. Scheduling of all school quotas for corps attached and organic units.

The mission of the Operations and Plans Branch of the G3 Section is as varied and all-inclusive as those of the Training Branch. The planning task in an overseas theater is of great magnitude, and can be considered a full-time job for a minimum of two officers. The diversion of two officers to this task is, however, hardly possible when one must consider that there are in the Operations Section three officers including the Psychological Warfare Officer. With world conditions as they are and the cold war so real, plans must be made for every eventuality. These plans are hardly "one time" matters, but are constantly being revised as additional troops and different troops become available and new concepts are devised.

Operations Branch

The Operations Branch is responsible for planning, implementing, and conducting command post exercises, field training exercises, and maneuvers to determine the state of training and to polish all the procedures necessary for the conduct of actual combat. This mission is, of course, directly related to the avowed mission of the corps—the preparation for combat. In USAREUR, the maximum utilization is made of all available time for field exercises. A normal command post exercise will include units down to and including separate battalions. The corps is responsible for the preparation of plans implementing orders from higher headquarters, and if the corps runs command post exercises and maneuvers, they are also responsible for the evolvement of the entire plan. In addition to the preparation of the previously mentioned items, the Operations Branch will ordinarily be responsible for the conduct of border operations in the corps sector. Border operations, of course, consist of the patrolling by road and air of the United States zonal border. In addition, there are certain tactical requirements that are planned and supervised by the Operations Section. Further, the Organization and Equipment Officer of the Operations Branch is constantly occupied making recommendations for changes in tables of organization and equipment, studying equipment modification lists, and attempting to find ways to make the corps combat ready with the best "tools of the trade."

I will do no more than touch upon the functions of the Army Aviation and the Troop Information and Education-Historical Officer. In so doing, I certainly do not want to minimize the functions of these officers, but rather would say that their tasks are as complex and varied as those of the other members of the section. The Troop Information and Education-Historian is responsible for the normal troop information and education functions of the all-organic units, as well as very active supervision of the programs of the attached units. This includes the basic education program, in itself a major problem in the Army today. The Army Aviation Officer, in addition to supervising the Army Aviation program of the corps attached units, is a member of the Corps Command Maintenance Inspection Team. This subject will be covered in detail later. It is sufficient now to say that it is a full-time job in itself.

Captain Robert T. Leonard served in Europe during World War II. From 1946 to 1949, he was a cadre officer at the United States Military Academy Preparatory School at West Point. As Assistant G3 in VII Corps, he was assigned to Operations and Planning Branch from March 1951 to July 1953. Since that time, he has been assigned to Headquarters, 42d Field Artillery Group, in Germany.

In addition to the branches of the G3 Section itself, the Assistant Chief of Staff, G3, is responsible for the co-ordination of all matters pertaining to operations that are performed by the Chemical, Engineer, and Signal Sections.

The G4 Staff

Upon the personnel of the G4 Section falls the active conduct of command maintenance inspection of all corps units, less divisions. Of course, the G4 is assisted in the conduct of these inspections by the technical and special staff sections of the headquarters. The G4 Section has under its active supervision the Ordnance, Quartermaster, Medical, and Transportation Sections. I mentioned previously the many plans prepared by the G3 Section. In the preparation of these plans, logistical support plays a major role. The G4, then, has the same many and varied plans for which he must prepare administrative orders. The preparation of the orders are, in themselves, a rather minor task when one considers the problem of planning and effecting their implementation. Quantities, supply points, types, and procurement are major problems that keep a minimum of one officer in the section constantly occupied. The constant supervision of maintenance and resupply of spare parts is another major problem. This problem requires constant supervision and "followthrough." The necessity of "followthrough" is evident to anyone familiar with the resupply problem since the advent of the Korean conflict. The followthrough necessary for the normal corps attachments is almost a full-time job. In time of peace, we in the Army have the opportunity to prepare studies on equipment, performances, and their effect on the over-all logistical picture necessary in the support of any contemplated emergency plan. The corps technical services are constantly working on these studies and take every opportunity afforded by field maneuvers to further these studies. It is these studies that consume many days and hours and are directly responsible for the scheme of maneuver eventually adopted for emergency plans.

The G1 Section of a corps normally has the mission of supervising the administration of the corps organic and attached units.

With selective service personnel, the G1 has an almost insurmountable task in keeping all units up to the strength necessary for combat efficiency. In addition, the G1 is responsible for troop and dependent housing. These last two are serious problems when one must consider emergency plans in all plans. The rapid turnover of personnel is not peculiar to this theater; however, when one is so close to the site of possible conflict, these problems are magnified. The role of the United States in world affairs has been firmly established, and our stand on international matters has been made a matter of record. Therefore, the maintenance of United States forces in a combat-ready state is a serious responsibility. To be combat ready, a unit must approximate authorized strength; therefore, the constant turnover of personnel is a never-ending problem. The G1 has under its active supervision the Chaplain, Provost Marshal, Special Services, and Adjutant General Sections. All of these sections provide personnel for training inspection teams, as well as supervising the attached units. In addition, the problem of serious incidents, those involving other nationals, is a major one. The maintenance of the high regard for the United States Army in Europe is, of course, necessary to the accomplishment of our mission in the theater. This, naturally, requires many hours and exhausting investigations.

The primary mission of the Corps G2 Section is to see that all units maintain the "sense of urgency" required in the successful accomplishment of the mission

of USAREUR. This mission, in itself, is enough to keep the entire section occupied; however, the task of training intelligence specialists is of equal magnitude. The turnover of personnel previously mentioned makes this problem particularly serious. The training of competent, efficient, intelligence specialists is not a short-range proposition; hence, the training must be constant and well supervised. The corps is not an intelligence-gathering agency in the true sense of the word, in that it does not have units of that type at its disposal. It is an intelligence dissemination agency, and a supervisory intelligence training agency. In addition, it plays a major part in the preparation and implementation of all border operations plans.

Training Exercises

The allocation of basic map loads for all units, and the constant issuance of training maps keep the G2 Air Branch busy. In addition, the request for air photos and the subsequent photo interpretation work make more than enough work for the G2 Air Branch. The extensive training program in USAREUR puts a terrific workload on the G2 Operations Branch. In a round calendar year, the corps will participate in an average of nine command post exercises and two maneuvers. The G2 Operations Branch, along with Order of Battle personnel, will prepare the enemy situation for each of these operations. In addition, the war gaming of classified plans—to test their feasibility—puts an intensive load on the G2 as he will be required to prepare and play the enemy situation. Training inspections conducted by the G3 habitually contain a G2 member whose primary responsibility is the inspecting of G2 matters and training.

The corps engineer, in addition to his staff position, is the commander of the corps engineer troops. The training of the corps engineer troops and planning for their tactical utilization is a major task. A corps in USAREUR ordinarily has an engineer group attached. The training, supervision, and testing of these units of the group are responsibilities of the corps engineer. These, of course, cannot be done from a desk, but require a major portion of time in the field. While away on these trips, the corps engineer's "in" basket fills with action papers on various and sundry matters. The planning task in this theater is immense, as was previously pointed out in the discussion of the Assistant Chief of Staff, G3 functions, and the most complex, complete, and tedious of these tasks is the engineer's. The successful accomplishment of these tasks requires the full time of one field grade officer; however, this same officer is the training officer. The reconnaissance of the corps sector, and the subsequent planning for invaluable "man-made" obstacles and barriers, is a continuing process. Of course, the corps engineer is also responsible for the distribution of the maps mentioned in the functions of the G2. In addition, the corps engineer provides personnel for the G4 Command Maintenance Inspection Team and conducts training inspections of all corps engineer units.

I have not mentioned the Technical or Special Staff Sections in detail simply because it would make this article extremely voluminous. All, I assure you, are every bit as busy as the staff sections mentioned above. The Inspector General inspections, the Judge Advocate and his multitude of court-martial cases, the Adjutant General and his papers, the Signal Officer and his constant quest for more communication equipment and trained personnel, are all worthy of more space. Let it suffice, however, to say that the corps mission is varied and comprehensive and points up the need for a study of the current corps table of organization and equipment.

NONMATÉRIEL STANDARDIZATION

Major Allan E. Younger, *Royal Engineers, British Army*

***It is astonishing how obstinate allies are, how parochially minded, how ridiculously sensitive to prestige and how wrapped up in obsolete political ideas. It is equally astonishing how they fail to see how broad-minded you are, how clear your picture is, how up to date you are and how co-operative and big hearted you are. It is extraordinary.*—Field Marshal Sir William Slim.**

The views expressed in this article are the author's and are not necessarily those of the Department of the Army, the Command and General Staff College, or the British War Office.—The Editor.

NONMATÉRIEL standardization between the English speaking nations has been continuing since 1942, but its impact on our Armed Forces is so widely misunderstood that one can hear the Department of the Army being blamed by United States officers for accepting too many "British" procedures and, on the other side of the Atlantic, British officers complaining that too many "American" procedures are being accepted. This is a clear echo of the difficulty of seeing both sides of a question inherent in all international dealings and so crisply illustrated by the remark of Field Marshal Slim, quoted above.

What are the facts and potentials of the nonmatériel standardization program?

First, it must be explained that although nonmatériel standardization is directly influenced by the matériel standardization program it has little or nothing to do with matériel matters and their related technical procedures, or with research and development. It covers all operational staff and logistical procedures and touches on doctrine, organization, and training. Significant progress has been made in the procedures field and in some aspects of doctrine. Organization and training present obvious difficulties and it is probably too early to start work on them yet.

Throughout the centuries, the advantages of alliances have been offset by misunderstandings between allies, but one does not have to go beyond World War II for illustrations of the need for standardization. General Omar N. Bradley, describing the original allied headquarters in Algiers in *A Soldiers Story*, writes "in the supply and administration organization it became necessary to establish parallel British and United States staffs because of the disparities that exist in equipment and procedures of both Armies."

At present, our military planning is directed toward preventing a third world war, with its inevitable disaster to both victor and vanquished. Never in history have the two sides in struggle been so clearly defined. Already, in peacetime, the majority of the nations of the world have made up their minds on which side they will stand should the need arise, and are

Standardization is aimed at ensuring that there will be no operational, technical, or matériel obstacles to prevent co-operation among armies and in obtaining the greatest economy in combined resources and effort

preparing individually and collectively to meet the threat. Consequently, we are faced not with a problem of two nations setting up parallel staffs, but with many nations, all of whose independence we respect, and all of whom have different procedures if not different languages. The size of a multinational staff under these conditions approaches the point where it becomes too unwieldy to operate against a single minded enemy.

This wasteful and dangerous situation leads directly to the aim of standardization which is "to ensure that there will be no operational, matériel, or technical obstacles to prevent co-operation among the armies of the countries concerned and to obtain the greatest possible economy in the use of combined resources and effort."

Different Programs

All military commanders recognize the need for a high degree of standardization within the forces they command. This is obvious and elementary. However, when armies of different nations prepare to act together in war, standardization has certain definite limits.

The very nature of the population of two countries may be different; one, perhaps, with a widespread mechanical knowledge and aptitude, another, hardy, tough, and accustomed to the open air. Again, the type of training and equipment which is best for, say, Norway, with its mountains, long coast line, and Arctic interests, is not necessarily the best for its near neighbor, Holland.

Our standardization must, therefore, be such that it develops and makes full use of diverse types and tendencies and does not stultify national abilities developed over generations.

Following logically from this, it is quite proper that there should be several standardization programs. There is no reason to suppose that the degree of standardization possible throughout the North Atlantic Treaty Organization (NATO) is identical to the degree possible between the United States, the United Kingdom, and Canada. However, the advantages of different programs to suit different needs, traditions, and experience must be set against the difficulty of co-ordinating a multiplicity of programs.

Legal Aspects

While no country is legally bound to accept any particular standardization program or item against its will, there are logical reasons and a strong moral obligation to consider the views of others during standardization and to make the completed agreement apply as widely as possible.

This becomes evident when an attempt is made to "localize" standardization geographically. For instance, if the United Kingdom accepts a NATO standard procedure for use in Europe only, troops being redeployed from Europe to another theater may use procedures and terms that are unknown in the new theater. This will certainly be confusing and may be very dangerous. Also, troops from one country operating in another allied country must not be put in a position where it is impossible or even illegal for them to act in accordance with a standard agreement. This situation will arise if, for instance, France ratifies a route marking agreement and Belgium does not. French troops

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Major Allan E. Younger graduated from the Royal Military Academy in 1938. During World War II, he served in France and Belgium with the 61st Field Company, Royal Engineers, and with the 79th Armoured Division. In 1945, he attended the British Staff College at Camberley. From 1950 to 1951, he was with the 55th Independent Field Squadron, 29th British Brigade in Korea. Major Younger is the author of "Bridge Demolitions," which appeared in the July 1953 issue of the MILITARY REVIEW. *He graduated from the Command and General Staff College in 1952 and is now serving with the British War Office.*

on Belgian soil may then be contravening the law of Belgium by implementing a standardization agreement.

However, responsibility toward others is fundamental to democratic government and is nothing new. Once any individual decides to join a group, his responsibilities increase to the same degree as his advantages.

Terminology

In this century, and in the nineteenth century, matériel development has proceeded along parallel lines at a tremendous pace in the United States, Canada, and the United Kingdom.

It is not surprising in these circumstances that the technical languages evolved have been different. During World War II, lists compiled on either side of the Atlantic of identical supplies might not contain a single item marked by the same name on each list.

The cumulative result of the thousands of different words and meanings forms an insidious and continuing threat to international understanding.

Regardless of whether the nations of the English speaking world are allied or in direct opposition to each other, nothing but harm can come from misunderstandings between them.

The Armed Forces of the United States, the United Kingdom, and Canada must accept a heavy responsibility as they are, by far, in the most favorable position to tackle the standardization of the English language.

No other group or agency, international or otherwise, has such widespread detailed interests and such an opportunity. By a phased program over a long period they could play a significant part in international understanding which would have a worldwide effect. In no field are the advantages of standardization so marked.

An initial inertia has to be overcome before any change can be effected. Field Marshal Earl Wavell, speaking on allied co-operation, said "there is no doubt of the principal stumbling-block to good relations and fruitful combination of resources: it is national pride and susceptibility."

There are two types of argument often directed against change. First, "It was good enough for Nelson so it's good enough for me," and, second, "It is the British way of doing things and I am proud of being British." Both are really variations of a single theme—nationalism—but neither has any part in command or in staff work in the system of alliances to which we are committed today.

The various procedures developed by individual nations may well be the most suitable for their individual national characteristics, although this is not always necessarily so. They may also be the best solution for adoption by an international force. The best solution for *all* the allies must be the aim, and the worth of any procedure must be proved before it is so adopted. Unfortunately, of the largest nations of NATO, neither the United States, the United Kingdom, nor France is particularly famous for accepting outside ideas. All are justifiably proud of the parts they have played in past wars and peacemaking, but in the future, all must accept standard procedures to a greater degree if any long term security against the Communist threat is to be established. If we miss the fleeting opportunity given us by this threat to draw permanently closer in our understandings of each other, we are missing a chance that may never occur again until the need has been re-emphasized by another war.

New techniques, tactics, and procedures are continually being evolved by alert organizations. With these new ideas, new words or new connotations to old words appear. We have mentioned already that

the parallel development of new ideas has made the English language diverge on two distinct lines. By standardization we hope to make those two lines converge, although it will take a very long time before they meet unless some exceptional factor intervenes. Exchange officers and international representation can play a big part in preventing any future tendency for them to diverge again by ensuring that new ideas are described in the same words in different countries. However, the existence of exchange officers is not enough, and the lack of a conveniently placed officer must not be made an excuse for unilateral action within the alliance. Officers in all countries must maintain a truely objective attitude of mind when considering the adoption of any new term likely to affect other countries.

There is a security aspect to this but it need not be important. Since we are not discussing code words, it will be very rare that mere definitions will have a high security grading, and we can afford to treat separately those which have.

Conclusions

1. The primary need is to educate the entire mass of our Armed Forces to realize that no individual country has a monopoly of brains and ideas, and that it is certain that there is something we can learn from other nations. It may be said that any reasonably educated man already knows this, which is true. However, the publicity given to it is so small that although the fact may be known, its logical implications are not realized. If NATO is to thrive as a true society of free peoples, these implications must be realized.

2. Whatever their relationship to NATO, the Armed Forces of the English speaking nations have a special responsibility toward their countries and to the future as the most important, if not the only, agencies engaged in standardizing their common language.

3. Independent and specialized standardization programs of any type between any combination of services or powers should be encouraged as long as the existence of the same subject in two or more programs does not result in confusion and wasted effort.

4. The effects of nonmatériel standardization will not be significant if the rate of increase of new procedures and terms exceeds the rate of standardization of existing ones. Adequate international representation can do much to prevent this, if supported by a truly objective attitude of mind.

In reading comments on international affairs one is often reminded of the difference in the image one sees in looking through the two ends of a telescope. Our differences with other nations frequently arise because we do not see a given situation in the same light. Yet, if we are to live in constructive friendship with the other nations of this world, surely the first essential is mutual understanding. Surely in this era of hydrogen bombs it is better to sacrifice something of one's own viewpoint to the honest views of another if that will maintain the peace.

Assistant Secretary of State John M. Cabot

MILITARY NOTES AROUND THE WORLD

UNITED STATES

Information Course

To meet the Navy's need for trained officer personnel who will be assigned primarily to information duties, a 5-weeks' course of instruction will be conducted at the Naval School, Journalists, Great Lakes, Illinois. Classes for the remainder of calendar year 1954 have been established, but the schedule for 1955 has not been announced yet. The course is expected to be the principal source of trained officer personnel assigned to information duties. Each class will be limited to 15 students.—News release.

Multiple Injection Device

A new "press-o-jet" multiple injection apparatus, shaped and triggered like an automatic pistol, allows injections to be given without pain or wound puncture. The only mark left after immunization is a short-lived welt about the size of a pencil erasure. The new gun can inoculate as many as 100 persons for typhoid fever without being reloaded. The immunization serum is driven through the skin painlessly by air pressure, and a small rubber suction cup, pressed against the patient's skin, provides the proper taut surface for the jet nozzle. The device is presently undergoing tests by the Army medical service.—News release.

Navy Almanac

By late spring 1955, the United States Naval Institute will publish a Navy Almanac which will contain current and historical information on Navy organization, missions, combat statistics, ships, bases, personnel, and all other matters of popular interest.—News release.

Begin Tests

The 1st Armored and 47th Infantry Divisions have been selected as the two units which will undergo extensive tests to determine what changes in organization and tactics are necessary for fighting in atomic warfare. The project is in the planning stage and actual field work will not start until the fall. The two units will start with their basic organization and develop new organization and tactics, both for offense and defense, from their experimentations. What type of unit will result, will depend on the experiments. The two units will operate together so that the operational relationship of infantry and armor can be determined. Among some of the answers to be sought are: the additional dispersion of troops in atomic warfare; need for alternate command setups; and the extent of overlapping supply organizations needed.—News release.

Convert ROTC Course

An additional 53 colleges and universities participating in the Army Reserve Officers' Training Corps (ROTC) will convert to the General Military Science Course, in place of branch training, beginning with the 1954-55 academic year. Of 241 institutions conducting the Senior Army ROTC program, 162 have now converted to General Military Science since the new course was introduced in 1952. The new course, which stresses leadership training and development of general knowledge and characteristics required of any Army officer, teaches subjects common to all combat arms, technical, and administrative services of the Army, instead of branch specialization. Under new Army policy, students enrolled in this course are given tentative branch assignments at the beginning of their senior year.—News release.

Strike Camera

Development of a new lightweight 70-mm aerial camera for recording rocket and bomb strikes of low-level, high-speed attacks by jet aircraft has been announced by the Air Research and Development Command. The new camera, designated the P-2, can take six photographs per second at shutter speeds as high as one two-thousandths of a second. It can be used, also, as a gun camera to record the effects of aerial gunnery.—News release.

Fastest-Firing Cannon

A new rapid-firing, 20-mm cannon, the *M-39*, has a cyclic rate considerably greater than the *M-3*, a .50-caliber machine gun, which fires 1,200 rounds per minute. It is an automatic revolver type and is based on the German prototype, *MG-213*, which had a cyclic rate of 1,500 rounds per minute. The weapon is being mass produced, and its designers are already working on an improved model.—*Aviation Age.*

Air Force Academy

In July 1955, the new Air Force Academy will receive 300 cadets at its temporary facilities near Denver, Colorado. The temporary facilities will be utilized until the 126 million dollar permanent installation at Colorado Springs, Colorado, is completed. Of the 300 cadets in the first class, 255 will be selected by the Air Force, after examinations, from candidates nominated by members of Congress. The remaining 45 cadets will be chosen from candidates nominated by other sources. The Air Force is already accepting applications for this first class, to be conducted at the interim site at Lowry Air Force Base.—News release.

Airborne Radar

An airborne radar, which will enable commercial pilots to see instantly the position, intensity, and extent of storms as far as 150 miles ahead, has been developed and commercial production is scheduled to begin this fall. The device can survey the terrain which should prove valuable, as landmarks are often important navigational aids when pilots are flying "blind."—News release.

Medium Bomber

Development of the *XB-58 Hustler*, a delta-wing supersonic bomber, is expected to receive increased priority. Intended to succeed the *B-47 Stratojet* as the standard medium bomber of the Air Force, the new plane is expected to have a speed of about 1,000 miles an hour. Design work is well advanced but much technical development still remains. New turbojets are being developed to power the plane. The *J79*, regarded as the most probable choice, is in the 15,000-pound static thrust class, and it is expected that the new plane will use four or possibly six of these engines. Strategic use of the *Hustler* will necessitate a new tanker/transport of great capacity and long range.—*The Aeroplane.*

Organizational Changes

As the result of several studies made in recent years, a reorganization of the Army will inaugurate changes which are designed to bring about an excellence in the logistics support activities which will make it possible to achieve a quality of over-all Army operations commensurate with the demonstrated excellence of Army combat operations. The new plan will provide an organizational structure which will enable the Secretary of the Army to exercise effective control of the Army Establishment. The plan calls for the addition of two assistant secretaries—one can devote himself to the three areas of men, money, and matériel, while the other devotes himself to the civil aspects of military functions, and to the civil functions of the Department of the Army. This will enable the Under Secretary to be free to assist the Secretary in general management. The Offices of Public Information and Legislative Liaison will come under the direct and immediate control of the Secretary.

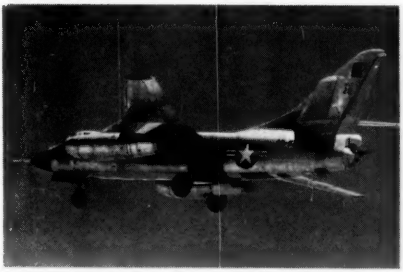
The Chief of Staff will have operational control, the supervision of all members and organizations of the Army, whereas, the assistant secretaries will exercise functional control in the areas delegated to them by the Secretary of the Army. The major change in the internal structure of the Department will be in that part which deals with the supporting services and matériel. A new Deputy Chief of Staff for Logistics will have charge of the seven Army technical staffs and services. A Continental Army Command will be established to assume jurisdiction over the Continental Armies and the Military District of Washington. The functions of the present Army Field Forces will be absorbed by this new command. Clarification and new impetus will be given to the organization for research and development. The Inspector General will be located in the Office of the Chief of Staff.—News release.

Field Ration

A standard field ration, which takes up less space and is cheaper, has been adopted for the Armed Forces. The new B ration includes 111 canned, dehydrated, and other types of nonperishable foods. It is designed for group feeding and covers breakfast, dinner, and supper for 15 days. Among the new features are 11 varieties of canned meat and fish, ingredients for fresh-baked items, including pastries, ice cream mix, dehydrated eggs, and a bigger variety of spices and sauces. An innovation is canned solid meats instead of the old mixed meat-vegetable hash.—News release.

Reconnaissance Bomber

A swift and versatile reconnaissance bomber, the twin-jet *RB-66A*, made its



New reconnaissance bomber begins tests.

first flight recently. No details on its performance were available.—News release.

Hand Salute

The hand salute will be rendered, beginning 1 September, by all Army personnel in uniform at all times when they meet and recognize persons entitled to the salute, except in public conveyances such as trains and buses or public places such as theaters, or when a salute would be manifestly inappropriate or impractical. The importance and traditional aspects of the hand salute will be emphasized to all Army personnel in conjunction with training programs.—News release.

Trans-Polar Route

Norway, Sweden, and Denmark have accepted the invitation of the United States to negotiate the operation of an experimental trans-polar air route between Los Angeles and Scandinavia, on a reciprocal basis. The reciprocal exchange of routes would be for a 3-year period only. At the end of this period, the agreement could be amended to make the routes permanent. The route from California to Denmark will be shortened by 446 miles, representing a saving of approximately 6 to 7 hours. The Scandinavian company has made a number of experimental flights across the Arctic and feels that they are feasible for passenger service.—News release.

Germ Detection

A very thin filter which will trap bacteria and permit them to be identified within 15 hours—or one-sixth the time previously required—was recently displayed by the Department of Defense. The flimsy disk, which resembles paper, is only slightly larger than a silver dollar. Similar to membrane filters used in laboratories, its extreme porosity permits water to flow through it rapidly, yet it traps on its surface all microorganisms, or their poisonous products which constitute a chief instrument of bacteriological warfare. In order to provide a method for bacteria count, the surface of the disk is marked off in small squares.

Previously, a gelatin plate-culture method required almost 4 days to produce similar information. About 300 of the new filters can be packed in a small pocket-size container, whereas the former detection system required a case of glass plates as large and as heavy as a desk for the amount of equipment required.

According to the report, the new filter will bring greater speed, reduced cost, and less weight and bulk of equipment to bacteria detection in the field.—News release.

Retirement Policy

A more liberal policy pertaining to the retirement of Reserve officers has recently been adopted by the Department of the Army.

Under the policy, Reserve officers who have completed 20 or more years of active Federal service, at least 10 years of which have been commissioned, may be retired voluntarily upon application. In addition, Reserve officers who are qualified for retirement by virtue of 20 years' service, and who have attained the maximum ages of 55 for colonels and 53 for lieutenant colonels and below, will be required to retire upon 90 days' notice to the individual. Although they may not have attained the maximum age limits, Reserve colonels with over 30 years of active Federal service and lieutenant colonels and below with more than 28 years of active Federal service will be required to retire also.

Under the plan, those retired will receive 2½ percent of their annual active duty base and longevity pay of the rank in which retired, which is the highest rank held on active duty reserve status, times the number of years of service credited for longevity pay purposes. This amount, however, cannot exceed a maximum of 75 percent of base pay. Reserve officers who were involuntarily released from active duty under Army release programs and who later retired in an enlisted status may be eligible for certain benefits under the new policy.

They may qualify for discharge from their current enlisted retirement status provided: they still retain a Reserve commission, have served at least 10 years as an officer on active duty, and apply for such discharge. They, then, could be retired in the highest commissioned grade held under Title II, Public Law 810, 80th Congress, according to the announcement. The Army said that it expected only a small number to retire under this plan.—News release.

Veterans Day

The President has approved legislation which will expand the significance of an existing legal holiday in order to pay homage to all veterans of the United States who have contributed to the cause of world peace.

In the future, the 11th day of November in each year will be known as Veterans Day rather than Armistice Day and instead of commemorating the memory, solely, of those who gave their lives in World War I, will honor veterans of all wars of the United States.—News release.

Replacement Policy

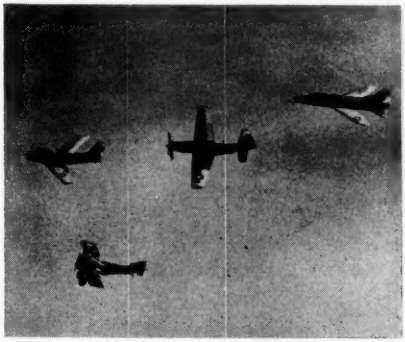
Under a new replacement policy, the Army will start, next year, assigning men overseas by platoons of 80 men. Later, it is hoped to expand the system to battalions of 880 men, and then to regiments of 3,600 men. In this manner, the Army hopes to keep the men who have trained as a unit together.—News release.

Improved Microphone

A dynamic-type microphone that has a transistor amplifier built into its handle is expected to improve battlefield communications. Although it is still in the experimental stage, its creators believe it shows promise as an answer to scratchy, sometimes unintelligible, field communications—particularly from tanks and other combat vehicles that jounce over rough terrain. A transistorized amplifier is used to magnify the tiny electric signals developed when words are spoken into it. Carbon-type microphones often obscure battlefield messages with a peculiar frying sound, usually caused by agitation of the tiny carbon particles in the microphone brought about by rough treatment. With the new device, it is felt that military personnel will be able to recognize familiar voices more readily—a valuable asset where security is concerned.—News release.

Fighter Development

Development in the field of fighter planes was shown recently when top United States fighters of the past, present, and future were assembled. Circling around the 110 mile-an-hour *Spad* of World War I are the *F-86 Sabre Jet*, the *F-51 Mustang*, top fighter of World War II, and the new supersonic *F-100*, holder of the official world's speed record of 755 miles an hour.—News release.



Four generations of fighter developments.

Extend Course

Effective with the current class, the 6-month officers' advanced course at The Infantry School has been extended to 9 months. The longer course will permit additional instruction and physical training that School officials consider necessary. It is presently planned to schedule two 9-month advanced classes to begin in September 1955. Advanced class number 2, a 6-month course to begin in January, has been canceled.—News release.

Aluminum-Hulled Craft

An aluminum-hulled craft, powered by four 16-cylinder motors, is the latest experimental version of the PT boat. It is about 90 feet long, and bigger, faster, and more heavily armed than its World War II predecessor.—News release.

FRANCE

Dual-Purpose Plane

After undergoing modifications to its structure and equipment, the *H. D. 32* is ready to resume its tests. The unobstructed main cabin of the plane may carry either freight or passengers or mixed loads. The plane is capable of operating out of the smallest airfields and even unprepared fields are within its capabilities. It also performs admirably in high altitudes. It is powered by two 1,200-horsepower *R-1830-92 Twin-Wasp* engines. Its economic cruising speed at 9,840 feet is 173.8 miles an hour. With a gross weight of 39,690 pounds, it requires a take-off run of 860 yards to clear a 36-foot obstacle. In its passenger version, the plane has accommodations for 42 persons.—News release.

Dual-purpose plane again ready for tests.

Naval Help

Under the terms of the Mutual Defense Assistance Program, the United States is transferring 11 landing ships, 9 landing ships, medium, and 2 support landing ships, large, to the French Navy. The ships were formerly a part of the United States Navy's Reserve Fleet and are being outfitted to bring their material condition in line with United States fleet operational requirements before being turned over to the French.—*All Hands.*

TURKEY

Power Project

A new dam and hydroelectric powerplant is being constructed at Demirkopru on the Gediz River near Izmir, in accordance with a contract awarded to a French concern. To be completed in less than 4 years at an estimated cost of 96.5 million dollars, it is financed by a 10-year credit guaranteed by the French Government and local capital.

The project incorporates a 246-foot earthfill dam with a reservoir capacity of 1.6 billion cubic meters to control floods in the Gediz Valley and provide irrigation for 2 million acres. Power from its 70,000-kilowatt plant will generate 152 million kilowatt-hours of electricity per year, to be transmitted to towns and cities in the Gediz River basin by means of one 174-mile, 154,000-volt line and one 40-mile, 33,000-volt transmission line.

A contract for similar power and irrigation facilities on the Kizilirmak River was let in April to a British company which opened a 9-year credit for the foreign-exchange portion of the estimated cost.—News release.

CANADA

Arms Shipment

A further shipment of self-propelled and field artillery guns to Portugal under terms of the North Atlantic Treaty Organization's mutual aid program has been made recently by the Canadian Army.—News release.

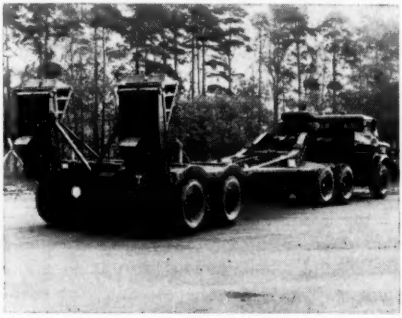
Navy Helicopters

The Royal Canadian Navy has accepted three *HUP* helicopters to be used to conduct ice reconnaissance and to resupply arctic outposts from the *HMCS Labrador*, the Navy's new arctic patrol vessel. The planes will also be used to perform air-sea rescue, ship-to-ship, and ship-to-shore passenger service according to the report.—News release.

GREAT BRITAIN

Tank Transporter

A new tank transporter, the "Mighty Antar," designed to carry the Army's heaviest and newest tank, the *Caernarvon,* will soon join British forces. From nose to tail, the new trailer measures 60 feet, and



New tank transporter joins British forces.

when loaded with a *Caernarvon* weighs over 100 tons. The weight would have been greater, but the use of a new type of semi-trailer, which has wheels only at the rear, and is supported at the front by the rear wheels of the tractor, allowed the number of wheels to be cut from 32 to 16. Hydraulically operated ramps at the rear of the vehicle enable tanks to be driven directly onto the carrying platform, while disabled tanks can be winched on and off. When loaded, the transporter can climb a gradient of 1 in 6, and in an emergency can reach a speed of 28 miles an hour. Normally, its road speed is restricted to 12 miles an hour. Steering is hydraulically assisted to lessen strain on the driver.—News release.

Refueling System

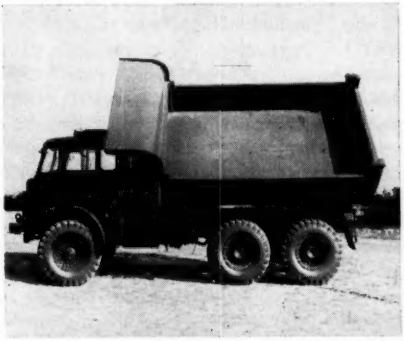
The probe-and-drogue system of refueling in flight, which was developed in Great Britain, has been adopted by the United States Air Force. This method requires less extensive training than the American method.—News release.

Bailout Device

A new seat-ejector and parachute device that can save the life of a pilot whose plane has hurtled to within 50 feet of the ground has been developed and is in production in Great Britain. The new seat is exploded out of the cockpit at the rate of 60 miles an hour. Half a second later, the seat automatically fires a cartridge that opens a small, strong parachute. Two and a half seconds later the main parachute opens—by which time the pilot's rate of fall has been slowed considerably. He lands at the normal speed of 15 miles an hour. The mechanism has been timed to a tenth of a second. In dives, it will work to within 100 feet of the ground, and in level flight half this distance is enough to save a pilot who previously was considered doomed if he had less than 1,000 feet to fall.—News release.

Three-Way Dump Truck

A new 3-way dump truck which is expected to save the engineers considerable time and labor, especially in roadbuilding operations, will soon be assigned to the



Three-way dump truck saves time and labor.

British Army. Twin hydraulic rams, operated from the cab, will allow the load to be deposited on either side or at the rear of the vehicle.—News release.

ARGENTINA

Aircraft Factory

Henzchel, a German aircraft factory, has renewed its studies concerning the establishment of a factory in Argentina with the object of producing aircraft for NATO countries. According to available information, the organization is interested in importing machinery from Germany to build fighter and trainer jet propelled aircraft. A group of German engineers is expected to visit Argentina to confer with Government authorities in the near future. —News release.

Supersonic Plane

Production of a supersonic aircraft capable of speeds in excess of 750 miles an hour is expected to start soon according to the Ministry of Aeronautics. Air tunnel tests of the proposed aircraft are currently in progress.—*Air Training.*

NEW ZEALAND

New Uniform

A more glamorous dress uniform has been designed for members of the New Zealand Women's Royal Army Corps. The colors are cream, green, and brown instead of the present khaki.—News release.

POLAND

Exchange Products

A trade agreement providing for Austrian deliveries of magnesite, nitrogen, and various products in exchange for Polish coal, chemicals, and eggs has been concluded by Communist Poland and Western Austria.—News release.

SWEDEN

Naval Conversion

The Swedish Navy is in the midst of a 7-year plan of conversion into a fleet of light and fast forces of cruisers, destroyers, submarines, and motor torpedo boats. Two destroyers are expected to be delivered this year.—News release.

SOUTH AFRICA

Build Cyclotron

South Africa, one of the largest producers of uranium, will be smashing the atom within 2 years. A cyclotron, the first in Africa, is being constructed in a room 34 feet underground in Pretoria. The project has been underway for the past 3 years and is being built with local steel and materials at a cost of $168,000.—News release.

INDIA

New Calendar

An Indian scientist has proposed a simplified "world calendar," under which days of the week would fall on the same date each year, to the United Nations Economic and Social Council. The plan is to divide each year into four equal quarters of 91 days, making a total of 364. The first month of each quarter would have 31 days and the second two, 30 days. To keep in step with the celestial timepiece, a 365th "world day" would be added at the end of each year. Leap year would be taken care of by having a special "leap year day" on 31 June. Since each year would contain exactly 52 weeks plus the overlapping "world day," the days of the week would fall on the same date each year.—News release.

ITALY

Suspension Bridge

Plans to erect a bridge over the Strait of Messina, to connect Sicily with the mainland of Italy, have been presented by an American bridgebuilder. The estimated cost of the bridge was placed at approximately 150 million dollars. It would be one of the longest suspension bridges in the world, about 2 miles, with one span in the center 1 mile long. It would probably have to be one of the strongest steel suspension bridges ever constructed because of the powerful currents of the Strait.—News release.

BRAZIL

Automobile Factory

The complete manufacture of a purely Brazilian automobile, using machinery and equipment of German origin, is planned by a São Paulo industrial center. The company plans to produce a car essentially adequate for Brazilian requirements. Construction of the first factory building which will contain the foundry and other heavy manufacturing sections has already started. The building will be 1,500 feet long and 100 feet wide. An industrial area of 3 million square feet is being prepared.—News release.

AUSTRIA

Radar Screen

Finishing touches on their sector of a chain of radar stations stretching from the Baltic to the Black Sea have been made by the Soviet forces in Eastern Austria. These radar stations have replaced a network of observation posts and are designed to give better warning of possible air attacks from the west and southwest. Some of these posts are fixed, but the majority are small, mobile units that are moved frequently from one spot to another to avoid attracting attention.—News release.

YUGOSLAVIA

Build Ships

Under provisions of the European offshore procurement program, Yugoslav shipyards are to build four inshore minesweepers for the United States Navy. The four vessels are expected to cost about 3.5 million dollars and are to be delivered over a period of 3 years. The Yugoslavs have their own fleet of "little ships" designed for speedy inshore defense operations and are experienced in building minesweepers. According to reports, Western naval inspectors have found the Yugoslav yards well equipped and organized.—News release.

USSR

Ground Attack Fighter

A jet plane which has a reported top speed of 560 to 590 miles an hour is the latest Soviet ground attack fighter. Its armament consists of four cannon—two 23-mm and two 37-mm—in the lower portion of the nose and four wing-mounted rockets. It is a 2-place plane and weighs 16,000 pounds.—*Air Training.*

Return Ships

The last group of 38 American ships given to the Soviet Union in World War II under the lend-lease program have recently been returned to United States naval authorities at Istanbul, Turkey.—News release.

Transport Helicopter

The latest Soviet development in the helicopter field is a model incorporating a nose mounted radial engine driving a 4-blade main rotor and small antitorque rotor. Designed as a transport helicopter, the cargo area behind the cockpit is large enough to accommodate an American size jeep.—*Air Training.*

Geneva Conventions

By depositing ratification of the four 1949 Conventions with the Swiss Federal Political Department, the Soviet Union has legally bound herself to the Geneva Red Cross Conventions for the protection of war victims. With the ratification by the Soviet Union, 36 states are now bound by the Conventions which call for improved conditions for the sick and wounded in war, as well as the protection of the civil population in wartime.—News release.

Plane Production

In fighter production, the Soviets are still building 2,400 piston engine types, possibly because of the jet's heavy fuel consumption.—*Air Training.*

AUSTRALIA

Fighting Force

As a result of the country's 3-year program, Australia now has a defensive force of 150,000 men. In June 1950, the country had a total force of 58,000 men. Under the present national service training program, 33,750 men are called up for training each year. The Navy now has 23 ships, and the Air Force has almost trebled in strength.—News release.

Atomic Research

Authority to build special research laboratories, so that studies can be made of the problems relating to the technology of atomic energy, has been granted the Australian Atomic Energy Commission. The laboratories will be built in Sydney and will be operated by the Commission itself.—News release.

Uranium Production

The production of uranium ore in Australia has been stepped up recently, both by the Government and private enterprise. A huge refining plant is being built at Port Pirie.—News release.

COMMUNIST CHINA

Centralize Government

To further centralize its government to suit the country's planned economic construction, Communist China has eliminated four provincial governments and abolished a regional level of government. As a result of these changes, the country now claims 26 provinces, including Formosa held by Nationalist China. Administrative committees for China's six greater areas—north, northeast, northwest, east, central-south, and southwest—were abolished. After 11 cities, now administered by the central government, were transferred to provincial administration, only Peking, Tientsin, and Shanghai remained directly under national control. —News release.

NORWAY

Defense Budget

The ordinary defense budget for 1954-55, totaling more than 100 million dollars, has been approved by the Norwegian Parliament.—News release.

Defense Aid

Approximately 500 million dollars have been allotted to Norway under the Mutual Defense Assistance Program. In addition to supply shipments, over 2,000 Norwegians have attended United States military schools.—News release.

Electronic Communications

A new, ultramodern telecommunications and radar school, designed to keep its students abreast of technical developments in the field of electronic communications, has recently been opened by the Air Force at Lutvann, near Oslo. So far, the school has trained 500 noncommissioned officers and 1,000 conscripts in radiotelephony, teletype operation, and radar. It is planned to increase the present enrollment from 250 to 500 students. The 10-month training program comprises a course in elementary electronics, followed by advanced courses in telecommunications, radar, and radio officer training. After graduation, students continue their practical training with the Air Force for another 8 months. —News release.

BELGIUM

Reduce Service

As a result of the Government's decision to reduce compulsory military service from 21 to 18 months, about 80,000 servicemen, just over half of Belgium's armed forces, will be mobilized earlier than was previously expected. It was explained that the efficiency of the country's military forces would not be impaired nor would her obligations under the North Atlantic Treaty Organization suffer.—News release.

FOREIGN MILITARY DIGESTS

Modern Weapons versus the Soldier

Digested by the MILITARY REVIEW from an article by Captain D. S. Clarke in "The Army Quarterly" (Great Britain) January 1954.

A VERY important matter under discussion at the present time is the question whether the progress of modern weapons and mechanization is causing too great a reliance to be placed on their possession and too little on the fighting determination of the soldier himself. The answer to the question is of very great significance. It is a question which must be answered not only by commanders responsible for the training and equipment of their own services, but also by the governments who decide the policy and apportion the financial resources to carry it out. False conclusions will lead to false emphasis in that preparation for war which is the fundamental concern of the armed forces in peacetime.

No attempt has been made to define exactly the relative degrees of reliance which should be placed upon the possession of modern weapons and mechanical equipment on the one hand and upon the fighting determination of the soldier himself on the other. This must be decided by circumstance. What history clearly proves is that neither the one nor the other alone can achieve success against an opponent in possession of both. It further proves that fighting determination will do a very great deal to balance inferiority of equipment. It has, therefore, been accepted that the tendency to be avoided is that of undue concentration upon the provision of material resources leading to a neglect of the state of mind of the man himself. The opinion which is to be examined holds that this tendency can already be discerned.

To discover to what extent this opinion is true, it is necessary to look into the policy for the equipment and training of the armed forces.

This will be examined both from the point of view of those who are directly concerned with its implementation and from the point of view of the general public whose attitude has an important influence in a citizen army. But before embarking on these detailed researches, the relationship between fighting determination and the possession of modern weapons must be discovered and the meaning of each must be defined.

Fighting Determination

Fighting determination in the largest sense is the will to win. Translated into the mind of the fighting soldier, it is the determination to endure and to destroy the enemy. The factors which go to produce this mental state are many and varied. Among primitive and mentally underdeveloped peoples its possession is dependent on direct and simple factors, such as the desire for gain or blind obedience to orders or tribal tradition. In civilized communities its causes are much more complex. A more detailed study of these complex factors will be made later in this article. At this stage, a superficial recognition of some of these will help to assess the degree of reliance which is placed on them.

Among all peoples, the fundamental ingredient of fighting determination is high morale. This is a mental and moral condition which, among civilized peoples, is dependent mainly on leadership, discipline, comradeship, and self-respect. To these main factors may be added many subsidiary ones, among which can be included adherence to a cause, regimental tradition, success in battle, personal happiness, good administration, and propaganda. High morale, coupled with courage and physical fitness, produces effective fighting determination.

Modern Weapons

If fighting determination is the will to win, the possession of modern weapons and mechanized equipment is the means. The term "modern weapons" must be taken to include not only the weapons themselves, but also the technique of using them and the logistic support that their use demands.

During the last 13 years, progress in the discovery of new weapons and in the perfection of the existing ones has been particularly rapid. The greatest single event has, of course, been the production of the atomic weapon. It is dangerous to state sweepingly that the practical application of the principle of nuclear fission will "revolutionize" modern war, but there is no doubt that in conjunction with improvements in the function of radar and in the direction of guided missiles, it will have a profound effect upon it. Wide dispersion will be essential on the battlefield. Concentration for the attack, which is necessary to ensure deep penetration, will have to be effected far more quickly and secretly than ever before if the atomic weapon is to be denied a worth-while target. Because of the need for dispersion, battlefields may well become much larger and fixed fronts may give place to large areas of mobile fighting by small, fast columns. Improvements in communications will allow a series of very swift, widely separated actions which will place an even higher premium upon the fighting determination of the local commanders and of the soldiers concerned.

To rely so much upon the possession of these weapons as to neglect the spirit of fighting determination of those who will use them and have them used against them is, therefore, deeply unwise. Yet, it is suggested that this is the very error which is being made. It is obviously not the intention to suggest that their possession is unimportant. The history of the last few years shows the value of the Western technical superiority against the threat of aggression from the Soviet Union. But it has been accepted that technical and material superiority alone are not sufficient. Is it a fact that too much reliance is being placed on the possession of modern weapons at the expense of the possession of fighting determination?

The Service View

As has already been said, one of the places in which to look for the answer to this question is in the policy for the training and equipment of the armed forces

from the point of view of those directly concerned with its implementation. These are the Secretaries of State who define the policy and present to the government the financial estimates for the provision of funds to carry it out, and the commanders of the various services throughout the chain of command who advise the government and carry out the policy. It should, therefore, be possible in the first place to discover their attitude by a study of the financial estimates. This is, however, difficult as it is impossible to assess what proportion of the money concerned with the interests of the human element contributes directly to the inculcation of fighting determination. It may, of course, be reasonably deduced that money allotted to increase pay or to improve living conditions will contribute by attracting to the services the type of individual best able to develop those personal attributes of leadership, discipline, comradeship, and self-respect which are the principal ingredients of high morale. The most significant fact which arises from such a study is that in the last few years, when the estimated expenditure has had subsequently to be reduced to meet the demands for national economy, no reduction has been made in the sums forecast for the requirements of the human element. This strongly suggests that these vital interests are given their full weight even to the extent of maintaining them at the expense of the program for re-equipment.

More direct evidence is to be found from a perusal of training directives. These concern the individual soldier very closely, since they will be in the hands of those directly concerned with his training. It would be out of place to quote at length from these pamphlets. As an example taken at random, the military training publication, *Training for War*, published in 1950, contains in its introduction a quotation to the theme of which it constantly returns: "In war, it is the man that counts and with good men anything is possible." This theme is common not only to this one pamphlet but to all such training directives, since it expresses what experience has proved and what is generally known throughout the services, that no matter how sound an aim a commander selects, or how well he applies the principles of war to his situation, he will not succeed unless his men have the will and the skill to carry it out. There can be no doubt that within the sphere of the services themselves, this point is thoroughly understood and that due reliance is placed upon the fighting determination of the soldier.

There has been, however, lately a tendency among junior commanders and troops to rely unduly upon their mechanical equipment and heavy support rather than upon their own efforts and the use of their personal weapons. This was particularly evident among United Nations troops at the start of the Korean conflict, when there was an obvious reluctance to be parted from their mechanical transport and to take to the hills on foot. A similar attitude has been noted in recent exercises, and the general deterioration in the standard of rifle shooting may be further evidence of this tendency. The Army, therefore, cannot claim to be immune from this danger.

Public Opinion

While the services are constantly reminded of the value of the man himself, the public in general is more likely to be interested in the material resources of the armed forces. The first reason for this is that progress in modern weapons during the last few years has captured the public imagination, and the second is that the problem before the public eye at all times is the financial cost of providing these weapons. The cost of rearmament is always envisaged as being the cost of providing more and newer weapons. This

view is strengthened by a general knowledge of the large amount of material aid which is needed to modernize the fighting services of less highly industrialized nations. It is supported by the popular fallacy that a fighting soldier can be created by putting a man into uniform and giving him a rifle. Public attention is not often drawn to the need for continuous training both to operate and to maintain the equipment allotted and to create fighting soldiers to use it. It is not surprising therefore that the public tends to overlook this factor.

Two dangers arise from this. In the first place, in a citizen army, individuals carry with them into the services the opinions they have formed as civilians. With short-term enlistments and conscription, the services do not have much time in which to eradicate or to correct these opinions. Secondly, in a democracy, public opinion carries considerable weight. The strength of public opinion is greatest in a country with an unstable government, but even when the government is secure, it is by no means negligible. An uninformed public opinion is, therefore, particularly dangerous in a democratic country.

The possession of modern weapons is undoubtedly necessary to any country which is prepared to go to war to protect its freedom and way of life. It has been accepted that the possession of these weapons alone will not be sufficient without the fighting determination of the soldiers who are to use them and to have them used against them. Those who are directly concerned with the training of the armed forces clearly realize this, and are constantly endeavoring to instill in the man this fighting spirit.

Public attention, on the other hand, is focused upon the cost of providing the material resources for war. Public imagination, too, has been captured by the latest developments in weapons so that they may come to be considered as battle-winning factors in themselves. This point of view has been proved false by experience, and becomes dangerous because in a democracy public opinion has great power of influence both politically through government and militarily through the citizen-soldier. It is not possible to assess to what extent this influence has yet exerted itself, but there is a recognizable trend toward the devaluation of the human element in favor of the material. While, therefore, it is not possible at present to agree or to disagree categorically with the truth of the opinion which forms the subject of the first part of this article, it must be accepted that there is a danger of it becoming true. The problem that now remains is how best to rectify and to prevent the development of this trend.

There are two approaches to the problem. The first is to make the nation more aware of the value of the human factor, and the second is to increase the spirit of fighting determination in the soldier himself. The close relationship which exists between the citizen and the soldier in a modern state makes the accomplishment of the second dependent ultimately on the success of the first. Each approach demands a knowledge of the nature of fighting determination. The main ingredients of this mental state and the factors which promote it have already been described. They must now be examined in more detail.

High Morale

High morale is the most important constituent of fighting determination. High morale in itself is dependent on various factors. Of these, the essential factors are leadership, discipline, comradeship, and self-respect. Without any one of these, high morale cannot exist. There are others which, while not essential, are generally present and which help to promote it. Among these others are adherence to a cause, regimental tradition, personal hap-

piness, good administration, and propaganda.

The quality of leadership can best be described by reference to the characteristics which are found in a leader. The essential ones are calmness in crisis and resolution in action. There are many other qualities, such as knowledge of his profession, sympathy, and sense of humor, which a leader should also possess since the extent to which he is followed will depend upon the degree to which he can display and develop these qualities. The natural leader will possess these characteristics in himself to a high degree; in others they must be developed.

The object of discipline is to instill an instinctive obedience to orders and to maintain unity within a group so that it does not disintegrate into a collection of frightened individuals under conditions of danger or hardship. The methods used to achieve this object vary widely in accordance with the nature of those who employ them and upon whom they are employed. Generally speaking, discipline may be based either on fear of punishment or on co-operation. Among the more civilized and highly-developed races the latter is more effective. Discipline based upon fear of punishment is effective only so long as that fear remains. If the fear is removed through any cause, discipline will be broken; whereas discipline based upon co-operation will endure under any circumstances.

Comradeship describes the corporate sense which should exist within a regiment or among a group of individuals employed on a common task. Its existence will cause the individual to surrender his own advantage to the general well-being of the group to which he belongs. It will also help to drive out fear and to overcome hardship by the thought in the mind of each man that he is not alone in a particular predicament. It is particularly important that this corporate sense be strongly developed in these days when there is no longer the hollow square or the thin red line to give reassurance by physical proximity. The modern battlefield is very empty, and loneliness becomes a real enemy.

Self-respect is the anchor of the individual which holds him true to his own nature. It gives him confidence in his ability to overcome danger and hardship and, in some cases, to inspire others. It strengthens his pride in his own community, and, in the final event, enables him to sacrifice himself rather than to lower, by retreat, the standard he has set.

Among the subsidiary factors which contribute to high morale there is one, devotion to a cause, which in a certain type of man can exert a stronger influence than any other. It is unlikely that the proportion of men to whom this applies is very large, but for those to whom it does, it can become the guiding principle of their lives. The desire to act in conformity with a racial or regimental tradition is another very strong spur to action in some men, and a support to most. Personal happiness and good administration, by removing extraneous worries from a man's mind, leave him free to devote his energies to the successful completion of the task before him, and promote comradeship and self-respect. Propaganda, judiciously employed, will serve to strengthen the conviction of the individual in the rightness of his cause, and to reassure him in times of crisis. There are undoubtedly other factors which, in particular circumstances and among particular individuals, contribute to a general state of high morale, but those which have been mentioned are the most important.

Courage

The other constituent of fighting determination is courage. Many of the factors of high morale contribute to the promotion of courage by training the man to follow

a course of action which is not to his immediate personal interest. In very few cases is courage the absence of fear; it is almost always the suppression of fear by an act of will. This victory over fear can be made easier for the individual by the support he derives from being the member of a group with high morale, but fundamentally it is the product of the nature of the individual. Experience has proved that the man of character in peace will be a man of courage in war.

Citizen Training

This review of the factors of fighting determination reveals that the qualities can be cultivated provided that the subject has the necessary background of intelligence and character to assimilate them. It is for the preparation of this background that so much time is required. In the past, the King's Shilling was extended to any who would take it, among whom was a high proportion of criminal riff-raff joining for drink, and of country bumpkins caught up by the wiles of the recruiting sergeant. The long-term engagements into which they were conscripted gave the services sufficient time in which to turn these apparently unsuitable individuals into the magnificent fighting men of the old armies. With time at its disposal, the task of the Army was simplified by the nature of the men themselves. They were disposed by upbringing to submit to the harsh discipline and, in many cases, to the brutish way of life imposed upon them. The mind was for many of them a *tabula rasa* upon which the Army could, by long process, inscribe its own traditions. There was a readier acceptance of doctrine and a less urgent search for motive and purpose. Technical training was a great deal simpler, and consisted, for the most part, of ensuring instant obedience to a series of verbal orders given even on the battlefield under the eye of the officer commanding. So strong was the force of discipline induced by these methods that the individual soldier would not even break ranks to avoid the cannon ball whose flight toward him he could watch with his own eyes.

Few of these conditions exist today. Nearly all men entering the Army have received a certain amount of education, but for the majority, and certainly for the National Serviceman, this has not yet been reinforced by experience. The result is often that this education, while assisting them to acquire the necessary degree of technical knowledge, causes them to be antagonistic toward the noble traditions that their predecessors accepted without argument. In the second place, the men of today are accustomed to a higher degree of physical comfort, have suffered less hardship, and have had less opportunity to stand on their own than did their forebears at the same age. Since maturity of outlook, self-confidence, and ability to withstand hardship are important ingredients of a soldier's nature, the Army must supply these deficiencies. The methods by which it can do this in the very short time at its disposal are discussed later. The object of the present inquiry is to find if there is not some way in which the human material can be prepared so as to make the work of the services easier.

It is neither practicable nor in any way desirable to follow the practice of totalitarian regimes where the citizen is taught from childhood to glorify war and to approve the military virtues as the only ones worth while acquiring. The Athenian tradition to see life steadily and to see it entirely is more worthy of attention than the arid militarism of Sparta. The danger is that due to some revulsion of public feeling, as after World War I, or due to a misplaced public confidence in material resources, such as can be detected at the present time, the value of the military tradition may be overlooked altogether outside the services themselves.

Since the majority of men who now join the Army spend the greater part of their early years either in their own homes or at school, it is in these two places that the preparation must be largely carried out. The task is dependent, in fact, upon environment and education. The influence which environment exercises is conditioned by the way of life and tradition of the man's family, and by the attitude of the family and his acquaintances to the Army. By wise propaganda on its own behalf, the Army can exert an influence upon this attitude, so that it is friendly to the military tradition. In this respect, as in many others, National Service has rendered a benefit, for it has obliged the Army to address itself to the reassurance of the men themselves and of their families as to the nature of military service. It has also given the Army an unequalled opportunity to prove its point by example. Each National Serviceman who leaves the Army having benefited recognizably in character from his 2 years' training is a powerful argument for the value of the military system.

In the field of education, the Army has, in a small degree, the opportunity of direct intervention. It has a liaison with the schools through the Army and Combined Cadet Forces, and with the universities through the University Training Corps. The Army Apprentice School, regimental boys training regiments, Welbeck College, and finally Sandhurst itself, all provide means by which the Army can gain more time for the preparation of the soldier's background. But only a very limited number of those with whom the Army will eventually be concerned pass through these institutions. The number of those upon whom the Army can directly exert its influence is therefore limited. Nor can the Army really afford to widen this field, for all such institutions use manpower and financial resources which must be drawn from those allotted to the military machine as a whole.

The way in which this problem is solved in totalitarian countries, where particular emphasis is laid upon the early captivation and training of the youth, is by the creation of youth clubs, organized and financed by the government, with the object of training its members mentally and physically for the one end for which the state requires them. Membership is perhaps voluntary in word, but in fact, by ways which are now well known, it is made compulsory. The tremendous effectiveness of such early training is evidenced by the fanatical devotion of the youth to the party ideals of those countries which employ these methods. But they are morally deeply objectionable in that they inhibit the youth's freedom of selection, and that they are used to bind him to follow false ideals. If these objections are analyzed, it can be seen that the second applies only to the use to which the methods are put, while the first concerns the methods themselves. The second objection can, therefore, be quickly dismissed by the realization that in the right hands these methods would be put to only the best uses. The first objection is, however, not so easy to answer.

There exist in this country voluntary organizations which are absolutely suited to fulfill the function that is required. It would be difficult to devise organizations more apt for this purpose than the Boy Scout movement, the Outward Bound Trust, or the Schools Exploring Society, to name only three of the many. Their value lies in the fact that they are voluntary movements. From this point of view alone any attempt to force membership would be a mistake. From the ethical point of view, it would not only be a mistake but also wrong to take just one more step to reduce the already limited freedom of the individual. The only sound way for

these organizations to extend their influence is by encouraging more recruits. For this they will require financial assistance. It is one of the marks of the topsy-turvydom of modern society that apparently inexhaustible supplies of public money can be found to look after society's failures and to keep them in prison or in mental institutions, but that very little can be found to prevent them from going there. And yet, a recruiting campaign fought on behalf of these voluntary organizations would do immense good to the national life and to the services who would afterward reap the benefit during military training.

Not only in this way outside the schools should the spirit of adventure and independence receive every encouragement, but within the daily life of education every endeavor must be made to develop these qualities. There are many well-proved means of doing this exhibited clearly in the public school system, which is merely an extension of the best principles of education in its widest sense. The system has been criticized on various grounds, but no criticism can be upheld of the results which it has produced at its best.

This regeneration of the great spiritual qualities among the young must be supported by an appeal to the imagination of the public as a whole. It is paradoxical that communism, which denies the value of the individual as an end in himself, and considers him only as a means to the glorification of the Communist idea, exhibits the surest way in which to focus the public attention on the value of the human element. This it does by constant reiteration of the militant nature of the Communist creed and the duty of its adherents to further it by their personal exertions and to sacrifice themselves unquestioningly to its demands. Communist propaganda seldom refers to the financial cost of the material for war, but relates it to the increased efforts required of the workers. Individualism is altogether suppressed, but individual exertion in accordance with the party line is encouraged at all times. Communism is a creed which is inherently attractive to a large part of the world and unless the rest of the world can develop a creed which is as attractive and more rewarding than communism, it will ultimately succumb to it for the very reason that victory does not, in the end, depend upon material superiority, but upon human energy.

There must be, therefore, in the free world, a return to the recognition of the value of the great human virtues of courage, devotion to duty, and self-sacrifice. This is the opportunity of those who control education and of those who direct public thought. It is a sad realization that during the last 30 years the disillusion following upon war has caused the value of these virtues to be called in question. During a war, itself, they spring into immediate prominence, but in time of peace they cease to receive respect.

Soldier Training

The training of the citizen is such a broad subject that it has only been possible to indicate in most general terms what must be undertaken. In the field of the training of the soldier, more detailed recommendations can be made. There is little likelihood of major changes occurring in the terms of service or in the construction of the Army in the near future, so that the recommendations must be related to the present conditions. The time factor is particularly important, since the period of National Service is unlikely to be extended and is more likely to be reduced as soon as circumstances allow. Nor is there a likelihood in time of peace of any swift alteration of public opinion, so that the recommendations must be made with a view to rectifying the tendency which is apparent now within the Army,

without counting upon any immediate support from any outside source. If and as the public assessment of the value of fighting determination alters, the task of creating fighting soldiers within the limited period available to the Army will be easier.

The Army has a soldier for a definite minimum of 3 years if a Regular and for 2 years if a National Serviceman. During this time, it must teach him the drills and techniques to make him technically efficient for war, develop the great soldierly qualities which are vital in war, and make use of his services as a trained soldier for as long a period as possible. This means that the time for what is referred to as basic training is reduced to the absolute minimum sufficient to give the man a sound working knowledge of the technique of his profession and to initiate him into Army life. During this time much attention is, and should be, devoted to making easier the transition from civil to military life. Good food, good barracks, and a sympathetic approach are the most important factors. Training is largely confined to the lecture room and the barrack area. The first principles of discipline are inculcated during this period, and comradeship and alertness are developed. Training is arranged so as to achieve this, and the methods are so well understood that it is not necessary to repeat them. But it is on joining his unit that the most important step of the man's training as a soldier begins.

The function of a unit with regard to training is to refresh the man in the subjects which he has learned during his basic training and to extend his military education. The unit has a much greater opportunity than the training establishment to develop the qualities of discipline and comradeship, and a unique opportunity to foster courage and endurance. Occasions for doing this occur naturally and frequently in a unit on active or semiactive service; in a unit not on active service, and in specialist and technical units, opportunities must be created. The methods used must concentrate upon displaying and proving that the man, and not the machine, is the source of victory in war. A conflict will arise between the need to train the man to work the machine, and the need to train the man as a soldier. The only way in which to resolve this conflict satisfactorily is to direct training operations in such a way that the aims, whatever they may be, can only be attained by the personal determination and endurance of the troops on foot, with mechanical transport and heavy-weapons support as assisting factors only.

For the purposes of such training, guerrilla operations are particularly suitable. They can easily be adapted to fit the scale and nature of the unit being exercised. Mechanical transport might be used to deliver the troops to their concentration area, after which they must be made to depend on their own ability to get forward on foot and by use of their personal weapons. The terrain for the exercise should be selected or used in such a way as to extend the physical capacities and endurance of the troops. In brief, the fighting soldier must be induced to regard outside support as an assistance but in no way as essential to the performance of any task.

The same methods must be applied to the training of junior officers. Regimental officers must be trained to examine problems in the light of the resources immediately available to them and not to depend upon air or heavy artillery support for a solution. To have troops advancing across the open, behind imaginary barrages on training, is ridiculous. Junior staff officers must be prevented from becoming so immersed in staff problems of supply and movement that they forget that the fighting soldier can march, and that he can, if necessary, fight on extremely small quan-

tities of food and water for limited periods, so long as he has ammunition. It is altogether salutary for junior staff officers to take part in battalion exercises during the training season to remind them of these facts.

If these principles are observed in unit training, they will be followed during formation training, even though at this higher level more emphasis will have to be laid upon material support and the use of mechanization. In addition, there are certain points which should receive attention during formation exercises in order to demonstrate and enhance the value of fighting determination. Opportunities should be made to test the fighting capacity of troops not usually in the front line by means of airborne raids in the communication zone or by other methods.

The size of headquarters should be kept under review. Vast headquarters overladen with vehicles have a bad psychological effect, and they are obviously tactically unsound. Administration should be on the scale normally encountered in operations, and not unduly elaborate or lavish with comforts. Due attention should be paid to acclimatization, but exercises should never be curtailed owing to inclement weather. All troops should be actively engaged at some period during the exercise even if realism has to be sacrificed in order to achieve it. All the efforts spent on unit training will be largely wasted if, during formation training, the interest of the troops is allowed to dissipate.

The conclusion that emerges from these reflections is that all military training, even though its primary object may be to test technical efficiency, must be designed in such a way as to call for and enhance the vital qualities of a soldier. In actual operations this happens automatically, for if the importance of these qualities is overlooked at first, it is swiftly brought to notice by the enemy.

The qualities which are developed in this way are those of courage, discipline, comradeship, and self-respect. The remaining quality essential to the development of a spirit of fighting determination is that of leadership. The problem of producing this quality is largely one of selection of the individuals best suited by nature to exercise it. The answer to this problem has undoubtedly been found, and it is difficult to see how the methods presently used can be improved. The key to the solution is the realization that leadership is not dependent upon technical ability or intellectual capacity, but upon what is generally known as character. The selected leader should, because of a greater natural aptitude, more quickly develop the other essential qualities. Throughout his training their overriding importance should be stressed in order that he may foster them in the troops under his command.

Conclusion

It has been established that there is a tendency at the present time to rely too much on the possession of modern weapons and mechanization, and too little upon the fighting determination of the soldier himself. This tendency is exhibited more clearly in the attitude of the general public, but can also be discerned in the behavior of the soldiers themselves under certain conditions in spite of the apparent awareness on the part of those closely concerned with military affairs of the dangers of such an attitude. This is due to the fact that opinions formed by men in civilian life are carried with them into the Army, and that under the present conditions of short-term engagements and National Service the military organization has little time in which to correct them. The solution to this problem depends ultimately on the re-education of public opinion so that it recognizes the vital importance of the possession of a fighting spirit in the nation

at large. It is, however, a vast undertaking which cannot be quickly achieved. In the meantime, since it is unlikely that the periods of service in the armed forces will be extended, it is essential that within the short time available to it, the Army does all in its power to eradicate this tendency within its own ranks. Only in this way can the free world develop a spirit of fighting determination sufficient to oppose and to defeat the militant creed of communism which depends for its success on human energy and the captivation of the human mind.

A Possible East-West *Détente*

Digested by the MILITARY REVIEW from an article by J. M. Spaight in "Air Power" (Great Britain) October 1953.

A PRES MOI LE DÉILUGE, said the old French proverb. Perhaps the reverse of it was muttered regretfully by Joseph Stalin, that man of blood, before his end: "Alas! No deluge if I go." If he had lived longer, a storm of red ruin might have swept the world. As it is, the prospect, the near prospect at any rate, of such a calamity seems to have receded; or has it? Is the new Soviet attitude to the West nothing but a subtle maneuver to delay or stop the West's organization of its defense? Or will there really be an East-West *détente*? And will the *détente* be a lasting one? The suggestion has been made that it will be one limited to 5 or more years, during which the new men of the Kremlin will be able "to assimilate and develop the vast areas, resources, and populations of China and Eastern Europe before they can feel confident about the outcome of an all-out conflict with the West which they most probably still consider as inevitable in the long run." But in truth we cannot tell what will happen. We can only keep our fingers crossed and hope for the best. Of one thing, at any rate, the author is confident: if there is, in fact, an East-West *détente*, air power will move up into a more prominent place in the new system of mutual security and collective defense in Europe which will take the place of that which was operative when the stopping of a Soviet attack upon the West was the sole question.

We, in these islands, are not given to going to meet trouble half-way. Usually, indeed, a war has taken us more or less by surprise. We always felt that somehow or other we should muddle through, and—somehow or other—we always did. On the other hand, we have had some scares which came to nothing in the end.

Russian Scares

This last scare was not the first which the Soviet Union gave us. There are very old men still living who remember another of 75 years ago. It was not quite as bad as the French scare of 1859, when Louis Napoleon was thought to be preparing to land an army in Kent, to send his new steam gunboats up the Thames to burn down Wapping and Woolwich, and to do a number of other very unpleasant things to us. But the Russian scare of 1877-78 was genuine enough. There was not the same rush of citizens to join the Volunteers, but the country was perhaps even more boisterously vocal in its patriotic fervor. It resounded to the strains of "We don't want to fight, but by Jingo, if we do . . ." We

came very close to war with imperial Russia then. She was in one of her expansionist moods. It was not a matter then of the spreading of the Marxist ideology, of a mission to take up the Red Man's burden all over the world. She was "Holy Russia" still, although the holiness was a little patchy. Her eyes were fixed covetously upon the Golden Horn; it was only as an excuse or a pretext, covering an ulterior aim, that she championed the cause of the Christian Slavs in the Balkans and sent her troops to "protect" them from their Turkish oppressor. We intervened to save Constantinople. We sent Admiral Hornby's fleet to the Dardanelles, and the Czar stayed his hand. He had to be bought off by Turkey's cession to him of Batoum and Kars. We, too, got our little whack out of the affair; it was the island of Cyprus. Destiny, it seems, was looking well ahead when it thus decreed that Batoum should come under Russia's rule and Cyprus under Great Britain's. It foresaw the day, no doubt, when the vital oil refineries at the former place, refineries not as yet thought of, might have to be attacked by air from the latter.

That Russian scare of Victorian days passed. Uneasiness persisted, however, in this country in the years that followed. Russia was hatching schemes, it was thought, to attack us in India via Afghanistan. The Khyber Pass acquired a new strategic importance. One can find reflections of our apprehensions in Kipling's *The Man That Was* and some of the other literature of the time. But Russia made no move. She was on her good behavior. We had plenty of troubles in other quarters of the globe, alarms of war, actual wars, but they were not of Russia's making nor inspired by her. Perhaps history will repeat itself in this respect. The Russo-Turkish War was followed, in a few years, by our troubles in Egypt; is there a possible restaging of the historical drama here? The colonel, Arabi Pasha, of that time seems to have been reincarnated with some differences in another Egyptian officer, of rather higher rank, in our own days.

The Soviet Colossus

There have been one or two outstanding and revolutionary changes in the international scene since 1878. Russia was then but one of a number of not unfairly matched European states. Germany, Austria, and France, not to mention Great Britain, had each a claim to belong to the same heavyweight class. The issue of a conflict between Russia and any of these countries would have been, by no means, a foregone conclusion. How different is the situation today! The Soviet Union is now beyond question the strongest power in Europe. No single state on the Continent could hope to challenge her with any prospect of success. There are, in fact, two super powers in the world today: the Soviet Union and the United States. That does not mean that Great Britain with the Commonwealth, France and the French Union, and, for that matter, to look a little ahead, a Germany unified and rearmed, will have ceased to be great powers. It is merely that, at the present time, the two other powers are *primi inter pares*.

The Polarization of Power

There has been a polarization of world power. One pole is to be found in the great land mass of Eurasia, the other in the North American Continent. Each draws irresistibly into its magnetic field the states which have a natural affinity with it. The idea that a "third force" can remain between them, unattracted by either, is an illusion. Such a "force" must inevitably fall sooner or later within the influence of the one or the other of the two centers of attraction. There is no escape from the fact that the balance of power, as it now exists, has become an interhemispherical one; the equilibrium that there

used to be in the Old World, itself, has been shaken and upset.

Given the predominance of the Soviet Union, there can be no real feeling of security in the other countries of Europe unless their governments and peoples are assured that they can rely on the aid of the United States in their day of peril. They cannot stand alone; if they tried to do so, they would exist on sufferance, on the forbearance of their mighty neighbor, on the condition of the Kremlin's corporate liver. That would be an intolerable situation for the ancient and proud peoples of Western Europe; but the facts of geopolitics are inescapable. The Marxist dictator is the top dog in Europe. He may do less growling and more tail-wagging, but he will still be top dog. And he may choose to bite at any time. What will prevent him, probably, is the knowledge that there is a big stick in reserve across the Atlantic if he does.

Hope From the West

It is out of the West that a ray of light and hope comes. Nothing in the world today matters as much as the fact that the United States has abandoned her policy of isolationism. The entangling alliances which the founding fathers feared are no longer the bugbear that they were. On the contrary, they are seen to be contributories to the United States own security. The great republic has taken its rightful place as the leader of the free world. In Korea its sons have shown that they are ready to die for the faith that is in them. It was the faith for which their forebears fought at Lexington and at Gettysburg, the faith of free men. And in Korea the quarrel was not their own.

This change in the foreign policy of the United States is the major international event of our time. It will be followed by other changes. The settlement of the German question will necessitate a resurveying of the entire field of Western defense. The pattern of the defense which has been organized has been dictated by the fear of the invasion of the West by the Soviets on a line which will no longer be the same when Germany is united and free—an invasion which might come in the very near future. The line on which contact would be made is one running down through Germany from north to south. It will clearly have to move eastward if and when Germany is unified. When she is, there may be no foreign forces of occupation in Germany. If the Soviets withdraw from their present zone in the East—and that will assuredly be a condition of any settlement—it is inconceivable that the Western powers will be able to retain the right to occupy their zones in the West. Obviously, then, the present plan of defense will have to go into the melting pot.

It is practically certain, in any case, that if and when a German peace treaty is concluded, the reduction of the forces now being maintained in Europe will be demanded by public opinion in the United States and Great Britain and probably in other contributing countries, too. The forces are kept in Europe under the terms of the Tripartite Declaration of 27 May 1952, in which the Governments of France, the United States, and Great Britain stated their intention to maintain them for the joint defense of the North Atlantic Treaty area.

The situation in which this promise was given was one in which the Soviet menace was immediate and alarming. If there is, in fact, a *détente* between East and West, and if the outcome of it is a settlement of the German question acceptable to all parties, the situation will have changed and the measures which were adopted to deal with a possible emergency of (it was feared) the near future will have to be replaced by others more appropriate to a long-term program.

An American naval officer, Captain G. H. Miller, has had some shrewd observa-

tions to offer upon this important subject. The United States commitments in Europe and the Far East will make it necessary for her to maintain, he points out, a position of reasonable strength over a period of many years—perhaps, indeed, for generations. It will not be the strength that was required when the country was keyed up to the prospect of a possible war in the immediate future. The measure of the difference, he states, is that between a marathon race and a short sprint. In any case, a stock pile of weapons amassed for a possible war in the next year or two would probably be obsolete in, say, 1970. The long-term policy is thus a different problem from that which has been called for by the current situation. Now the United States, he suggests, is well placed to create a defense system that would provide reasonable security over an indefinite period and would be well within the ability of the American people to support. His suggestion is "a mobile, flexible type of military force" by means of which the United States could "concentrate power, whether it be in the form of ships, airplanes, infantrymen, atomic weapons, or any other forces, at points on the fringes of the European and Asiatic Continents."

A firm believer in air power, while not suggesting that the naval and land services have not vitally important parts to play too, would prefer to give it a more prominent place in the picture than Captain Miller does, apparently, in a sketch of a future scheme of collective defense. He would do this with the greater confidence for a special reason to which Captain Miller does not refer. If and when the world settles down again to a state a little nearer normality than that which we have known since 1945, one of the first problems with which it will have to deal will be that of the replacement of a defense system designed to prevent a particular aggression from a notorious quarter by one aimed at preventing aggression in general. There will be no longer a potential "Enemy Number 1." The North Atlantic Pact was entered into to protect Western Europe from such an "enemy." The future situation, given the change for the better, referred to above, will thus be rather that contemplated in the Charter of the United Nations than the situation in face of which the Pact was concluded.

Air Forces Under the Charter

Now the Charter assigns a specially prominent place to air action as a means for the prevention of breaches of the peace. Article 42 provides that the Security Council "may take such action by air, sea, or land forces as may be necessary to maintain or restore peace and security." Note the order: air forces come first. Nor is that all. Under Article 43, member states of the United Nations undertake to make available to the Security Council such armed forces as are necessary for the purpose of maintaining peace, and Article 45 provides that the air components of such forces shall be held in a special state of readiness. It obliges the states to "hold immediately available air force contingents for combined international enforcement action." There is no corresponding provision in regard to sea and land forces. The air arm is clearly intended to be the court of first instance in any arbitrament of arms that may have to be resorted to by the United Nations Organization.

No arm is so mobile and flexible. It is the ideal instrument for immediate employment against disturbers of the peace at possibly unexpected times at possibly unexpected places. It would have to be followed up by the other arms if its intervention failed to prevent an outbreak; but, as is stated later, the deterrent effect should be sufficient in most cases to force the intending aggressor to stay his hand. The likelihood of prompt reaction to an outbreak would often be all that was

needed to restore the situation, and for the taking of such action, the air arm is pre-eminently qualified. It is the ideal trouble shooter when trouble is in the wind.

Peripheral Air Bases

Air action will be taken most effectively by formations which are specially earmarked for the purpose and are not too remote from the regions in which they may have to operate. Obviously, they cannot be "on the spot" everywhere when the possible aggressor is the great unknown. The present setup of the Allied Powers' air organization in Germany, with the 2d Tactical Air Force (British, Dutch, and Belgian) in the northern half of the Western Zone and the 4th (American, Canadian, and French) in the southern, will not stand when the occupation comes to an end. Western Germany is, in fact, crammed with allied airfields. "Flying over Western Germany," said the aeronautical correspondent of *The Times* in that paper on 19 May 1953, "a traveler becomes accustomed to the sight of airfields seemingly every few miles." All this is part and parcel of a politico-strategical concept which will have been outdated, or at least will be tactfully assumed to be outdated, when conditions in Central Europe become more normal. Already, indeed, one finds, in mid-April 1953, an influential British journal saying that "the rugged posture of embattled defense which the West has adopted may have to be modified, if only because the still uncommitted nations of the world lay great store by correct attitudes." What will happen to the other airfields that have been or were being established in Western Europe by the Atlantic Powers under their plan of defense—there would be 41 in France, 14 in Belgium, 13 in the Netherlands, and 3 in Luxembourg, in addition to the 30 in Western Germany, in 1953-54—cannot be foreseen, but it seems to be probable that they will have to be scaled down. A good deal of uneasiness is already felt in France about the location of American bases in that country. There are, however, a number of other air bases about the continuance of which similar difficulties should not arise.

They are the bases which the United States has established outside or on the western rim of Europe. They could not be regarded as having in view action against any particular aggressor; they are rather watchtowers looking out over Europe. They would be reasonably safe from danger of attack by long-range missiles. From them American bombers might take off if, for instance, a resurgent and rearmed Germany were to make a third desperate bid for *lebensraum*. Who will say that that is utterly inconceivable in the years that lie ahead? Two of the bases in question, those near Casablanca, at Nouasseur and Boulhart in French Morocco, would have a special appropriateness for use for this purpose. It would be a fitting turn of destiny's wheel if they served to restore, in Europe, the balance of power which the decisions taken at the conference of Casablanca did more to destroy than anything else that happened in World War II. From the four northwest African bases and, if retained, the three which the United States is leasing in Spain, American air power could exercise a powerful influence upon the international position in Europe. The bases in question would be readily reinforced from across the Atlantic, and the cost of upkeep would not be great if they were left to care and maintenance parties until an emergency arose and they had to be put into operational use.

What of the bases which the United States has at present in Great Britain? Marshal of the Air Force Sir John Slessor has suggested that Germany's fear that she may again be a battleground in a war between East and West, and France's and the Soviet Union's fears of a revived and militarist Germany, could be overcome by "a guarantee backed by Anglo-American

air power, based partly in the United Kingdom—a guarantee that an attack by any European power against another would automatically bring down the weight of atomic air power upon the aggressor." In a few years, no doubt, our British bomber fleets, re-equipped with *Valiants*, *Vulcans*, and *Victors*, will be fully able to undertake any deep incursions into Europe from the northwest that may be needed, and, with refueling in the air when necessary, could still undertake them even if their bases had to be moved back into Ulster as a precaution against attack by rockets or other guided missiles. Our bombers' incursions could be dovetailed into the forays of the United States Air Force from the southwest.

The United States in Europe

It would be a tragedy if all that has been done since 1949 to organize the Western defenses were to be swept away in a violent revulsion of feeling that might succeed the somewhat hysterical apprehension of the past few years. At least part of the structure of peace that has been built should be preserved. Let the Americans, their ships, and their aircraft continue to show the flag in this hemisphere, and the probability is that all will be well. American enthusiasts of the blue-sky school would deny that they require bases there. Sea power, says one of them, is dead or dying; it was "the last of the Mohicans," a noble breed that had its day. Overseas bases are "untenable" and quite needless. The United States can defend herself and the free nations of Europe by "direct hemispherical warfare," founded on global power. Clearly the United States Joint Chiefs of Staff do not share this view. The United States has established both naval and air bases in Europe and its vicinity, and she has, at present, armies there, too. She will eventually, no doubt, have no land forces in Europe, except to guard her bases, but she can have in European waters a powerful substitute in the shape of her superb Marine Corps. And she will have her mighty bombers ready, as before, to drive home the blows which our own Bomber Command will strike. They will make the most adventurous of potential aggressors think twice. No one will know what they carry in their bomb bays. They may never have to go into action. Their mere presence will be a warning and a shield. For what would the thunder of their onset mean? No one can tell. It might be only sound and fury, signifying little; but, again, it might be for a breaker of the peace, the veritable crack of doom. (Korea was no guide to what will happen in a great war; the Korean conflict was a second-gear one.) Here is a climacteric mission for the United States to undertake. One cannot doubt that she will rise to the height of the occasion. She, more than any other nation, has the power to say: "There shall never be another great war." World Wars I and II would not have come if her intervention in them had been a certainty from the first. She can veto a world war because such a war is total and brings the entire war potential of the belligerents into action; and her war potential is stupendous. Her power is based ultimately on her unrivaled wealth and resources. It is the counterpart of her power in the economic field. If another great depression should threaten, she could check it simply by raising her dollar price for gold. If the parallel catastrophe of a world war seemed to be approaching, she could keep it at bay simply by making clear beyond possibility of doubt her intention to be in the fight, if it comes, from the start. But she could play this master hand, this winning game, only if she held the right cards in the shape of the necessary armaments and, which is no less important, action stations at her disposal in or near the danger areas.

Fortunately, these truths are now well

understood in the United States. Both public and military opinion in that country accepts the conclusions that Western Europe is one of three critical regions (the others are the Middle East and the Far East) which it is in the interest of American security to help to safeguard from Communist domination. The United States is concerned not only because of the importance of denying to a potential enemy the great industrial resources of Western Europe, but also because "within it are located many of the most satisfactory bases from which to launch retaliatory attacks against military and industrial targets in the Soviet Union and the satellite countries."

The Transition

It is in some similar manner as that outlined above that the transition from the forced-draught program of defensive rearming of recent years to the less-pressing policy of the long-term assurance of peace and security can be most smoothly and effectively accomplished. It will amount to a compromise which takes due account of the difference between the exigencies of a critical situation to which the North Atlantic Treaty was the appropriate and necessary response, and the more "normal" situation contemplated in the Charter of the United Nations. What is essential is that the most important practical result of these two instruments of peace and security should not be lost or materially impaired. In them, the United States testified to her determination to take her stand with the nations everywhere who stand for peace, and to her intention to honor that undertaking by keeping forces in this hemisphere dedicated to the preservation of it. Her continued adherence to the line of policy thus traced would be affected, one can hardly doubt, by the extent to which the other peace-desiring states are prepared to share the burden. They must play their part, too. And in the meantime, it must be emphasized, there is no certainty that there will be a genuine *détente* or that it will last. Unless and until it is sure that there is one, and that it will not be a short-lived one, it is obviously essential to maintain our present policy of watchfulness and preparedness to meet an emergency which might be sudden and might be soon. And even the passing of that emergency will not bring the millennium to mankind.

This North Atlantic Treaty is in strict conformity with the principles and intentions of the United Nations Charter. NATO seeks to apply those principles effectively in a partnership of like-minded nations "So that they can unite their efforts for collective defense and for the preservation of peace and security."

The North Atlantic Treaty Organization is unique in that a group of nations has joined in a common purpose before, rather than after, a general war has broken out. For the first time in peacetime history, nations have actually organized forces under allied commanders which could act, on the outbreak of war, in the common defense.

Admiral Arthur Radford

The Strategic Importance of the Arctic Sector

Translated and digested by the MILITARY REVIEW from an article by Rear Admiral Lepotier in "Revue de Défense Nationale" (France) January 1954.

SINCE World War II, the daily press and magazines have frequently published articles in which the search for the sensational may mask the reasonable strategic realities derived from the actual geographic, political, and technical data.

The conquest of the air could find no better application than in a flight over the Arctic *ice barrier* which has halted man for 23 centuries.

On the eve of the beginning of the twentieth century, the Swede, Salomon A. Andrée, had attempted this flight in a free balloon from Spitsbergen, but had disappeared, and his remains were not found until 1930, on White Island, 560 miles north of his point of departure. Man had to await the development of the heavier-than-air aircraft before seriously attempting flight in the Arctic.

It was Roald Amundsen who first forsook the dog sled for the hydroplane and, taking off from a fjord in Spitsbergen, landed on the surface of the sea, between the ice floes, a distance of 16 miles from the Pole, in 1925. The following year, Richard E. Byrd made the round trip from Spitsbergen to the Pole in 15 hours. We had come a long way from the 46 days of Robert E. Peary.

Directly after this demonstration, Amundsen again took to the air, but this time aboard the dirigible *Norge* and, 3 days afterward, landed near Nome, Alaska, thus effecting the first aerial flight across the Arctic.

The Australian ace, Sir George Hubert Wilkins, declares that the great floes, if one takes care to avoid the hummocks, constitute many floating airfields and he demonstrated it by landing, on two occasions, on the icepack in May 1917. The following year, he flew from Alaska to Spitsbergen and declared, "It is not alone the attraction of adventure and scientific discoveries that led me to make this flight. It is my idea that the Arctic will one day become one of the great international air routes, since all the great nations surround it."

Arctic Routes

It has been said: "Aviation has finally caused men to understand that the earth is round." This is true, in the sense that, permitting selection of routes in any latitude while maritime means are confined to the temperate oceans, it has brought about a different view of the earth from that gained in the use of the classical geographic maps, drawn in accordance with the Mercator system, which completely distort the relative positions of the Nordic countries.

On the Mercator planisphere, which represents the world as projected on a cylinder tangent to the equator and afterward unrolled, the American and Asiatic coasts of the Arctic are represented as a prolongation. In reality, they face one another on opposite sides of this ocean—which is evident if one looks at a globe of the earth or at a projection of the Arctic on a plane tangent to the Pole.

It then becomes evident that the shortest route between the northern parts of Eurasia and America crosses the Arctic. While the great, intercontinental maritime routes run in an east-west direction, the great intercontinental air routes between points of high latitude and separated by about 180 degrees, run in a north-south direction and pass close to the Pole. Thus, to go directly from Seward, Alaska, to Leningrad, both 60 degrees of latitude and 180 degrees of

longitude from one another, if the plane heads north and later south, it flies 4,160 miles; while if it followed the straight line joining these two points on the Mercator planisphere, it would travel east or west on the 60th parallel and would cover the distance of the half circle, of which the preceding route is, roughly, the diameter (except for the curve of the polar cap) or 6,500 miles.

Of course, this difference diminishes as the points of departure and arrival are lower in latitude and less separated in longitude, but on the equator, the distance is the same whether one travels east or west on the latter or whether one travels north on the meridian. In either case, it is equal to half the terrestial great circle. One must not fall into the error of imagining that for going from Paris to New York, the shortest route would be to travel by way of the Pole. On the contrary, the shortest route is by way of Ireland and Newfoundland, and if we start from Trondheim, it is Iceland, southern Greenland, and Labrador which mark the direct route.

The Soviets

The Soviets decided to establish an airborne meteorological station at the North Pole in 1937. The base of departure was established on Rudolph Island, the northernmost island of the Franz-Josef Archipelago and which, for this reason, had already served as a point of departure for the surface expeditions of Fridtjof Nansen, Umberto Cagny, Anthony Fiala, and Sedov from 1895 to 1914.

On 21 May 1937, after 6 hours of flying, the *N-170* 4-engine plane landed on a floe some 1.8 miles in diameter and about 12 miles from the Pole. The plane carried the Soviet detail with their observation equipment and provisions which would enable them to live, observe, and communicate with the rest of the world for 9 months. During succeeding days, three other planes, without difficulty, brought the remainder of their matériel. The power for the electric generator for the radio was furnished by a windmill with aluminum blades. It did not want for wind. Their first task after the organization of their camp was to sink a hole in the ice floe—which was about 10 feet thick—and to lower a steel cable unrolled from a winch, to sound the sea at that point—13,775 feet deep at the Pole. The drifting of their ice raft enabled them to make a series of daily soundings which extended over a path which was finally to extend from the Pole to the southeast coast of Greenland.

Icepack Movement

Astronomical observations enable us to fix location and, afterward, to determine drift. This drift takes place, at first, fairly slowly and irregularly, southward, around zero meridian, virtually along the axis of the strait which separates Greenland and Spitsbergen. As it approaches this strait, the movement is accelerated toward the Atlantic to the point where it moves a distance of 57 nautical miles in 48 hours. The general direction of this drift, in the eastern half of the Arctic Ocean, is not only confirmed by the odyssey of the *Fram*, but also by that of the later voyage of the Soviet icebreaker *Sedov*, which was drawn to the center of the basin, passed north of Rudolph Island and Spitsbergen, and then into the strait, between the latter and Greenland. It did not succeed in freeing itself until after 812 days of drifting in the icepack.

The Arctic is, therefore, really an ocean, nearly 14,000 feet deep in its center, sloping upward regularly along its edges, particularly off the continental coasts of America and Asia, at the shelf which connects Greenland, Spitsbergen, Franz-Josef Archipelago, and Novaya Zemlya, and that of the Bering Strait, which is approximately 100 feet deep.

The idea must not be entertained, either, that the "cold pole" coincides with the geographic pole, or with the center of the icepack. On the contrary, Papinin's experience shows that the temperatures there are less excessive than on the adjoining land area: Siberia, Alaska, Greenland icecap. This is due to the underlying mass of water which plays the role of a veritable radiant heating plant. The actual "cold pole" appears to be located in the Verkhoyansk region of Siberia, where temperatures of minus 63 and plus 104 degrees Fahrenheit have been reported.

Contrary to what had been believed up to that time, this mission observed that animal life exists throughout the entire Arctic. Close to the Pole, the Russians saw sea birds, polar bears, and seals swimming in the water between the floes. The presence of these animals is a positive sign of the presence of fish.

Transpolar Flights

The Soviet polar station conducted weather observations which brought out the sudden and the violent character of the Arctic meteorological perturbations. As a matter of fact, the staffing of the Arctic with weather stations is a necessity for ensuring the security of the flights. It was because of the presence of this station and the one on Rudolph Island that the Soviets were able to beat the transpolar flight records in 1937. On 18 June, a Soviet team left Moscow at 0400, flew over the polar station the next day at 0500, and on the following day landed in Portland, Oregon, after a flight of 5,400 miles. On 12 July, another team left Moscow to fly over the North Pole and on the 14th, reached San Jacinto, south of Los Angeles—6,300 miles from their point of departure.

Levanevski, who left on 12 August, was less fortunate, disappearing the following day in an Arctic storm. The research group continued its scientific activity as it drifted toward the Atlantic. At the beginning of 1938, its floe was off the east coast of Greenland and continued to be driven along by the storms. The Soviet icebreakers did not succeed in reaching it until 19 February, off the shores of Scoresbysund, and triumphantly brought back to Leningrad these heroes of the Soviet Union.

Soviet Activity

At the same time that it renders possible flight over the Arctic Ocean, the airplane also provides the means for overcoming the ice-covered areas of the immense northern continents which border it, ensuring at all seasons of the year, and over great distances, the necessary reconnaissance, human communications, and rapid transportation of provisions and light matériel.

Thanks to the airplane, the Siberian Far North may be explored, developed, and exploited. This begins with the establishment of the numerous weather stations needed for securing the necessary air connections. Alongside of these, today, are radar stations for control and detection, for it is perceived that "these shore lines which face one another are also frontiers, separated by their immense 'no man's ice'."

In 1920, the Soviet Government created an institute for the study of the north. Two year later, the exploitation was entrusted to the *Komseverput*—the Commissariat for the Northern Sea Route. At the time of the first five-year plan in 1928, both institute and trust were integrated in the State Directorage for the Northern Sea Route—the *Glasermorput*.

It is an autonomous organization with its own budget; its civilian and military personnel which exceeds 50,000 persons; its fleet, which comprises at least a dozen icebreakers and icebreaker transports; nearly a hundred freighters and a multi-

tude of barges, towboats, and motorboats (*vedettes*); and its polar air fleet. It maintains about 150 meteorological-radar stations. Its jurisdiction extends over the continent and the Arctic Ocean, north of the 62d parallel, from Cape Kanin (eastern entry of the White Sea) to Cape Navarin (southern point of the Gulf of Anadyr).

The first director was Admiral Papinin, the former chief of the floating station, until his retirement in 1949; then Captain Afanasyev; and finally, after 1950, Major General Kutsnyetsov of the Naval Air Force. It is charged with the exploitation of the Siberian North. In 1930, the first convoy of 46 freighters, preceded by icebreakers, went up the Yenisey to Igarka where there was established an embarkation port for the timber and cereals coming by river from central Siberia. There were present, at that time, only a few *yourtes* of the Samoyedes. Two years later, there were 15,000 people there, an electric power station, fisheries, fish canneries, and several sawmills cutting up the thousands of logs which were floated down the river before it froze over.

Resources

The Directorate of the Northern Route has supreme control over the *Arktikugol*, which exploits the coal deposits of Spitsbergen, over the *Sevpolyarles*, or Bureau of Northern Timber; over the *Taimyrtrest*, a combination enterprise of fisheries and fish canneries of Dudinka-Norilsk on the Piasina, on the eastern shore of the mouth of the Yenisey; those of Khatanga in the eastern part of the Taymyr Peninsula; the oil fields and refineries of Ady, Utka, and Vorkuta, in the northwestern part of the Ural region; the tin mines of Varnek on the island of Vaygach; and the combination coal, iron, and gold mining enterprise of Kolyma. Everywhere, thanks chiefly to the air connections, the Arctic territories reveal new riches, and it is by way of the "Northeast Passage," opened each year by the icebreakers, that the timber, ores, fuels, cereals, and canned products are transported to the ports of the White Sea and the Sea of Okhotsk.

During the 3 months when navigation is possible, fog is prevalent about 15 to 20 days out of every 30, and one can imagine the service rendered by the marvelous radar under such conditions.

American Activity

On the opposite coast, analogous problems are presented, but the "Northwest Passage" has remained, thus far, much less practicable for navigation than the "Northeast Passage." On the Atlantic coast, the products of northern Canada, furs and wheat from Manitoba, are shipped out by way of Port Churchill on Hudson Bay. Farther to the north, in summertime, convoys preceded by icebreakers, penetrate to Baffin Bay to resupply the Thule Air Base in northwestern Greenland and through the Lancaster and Barrow Straits to the station on Melville Island. The mouths of the Coppermine and the Mackenzie remain inaccessible to oceangoing shipping. On the Pacific side, shipping does not pass beyond the air-naval base established by the United States near Point Barrow. Each year, there is an expedition composed of icebreakers, landing ships, tankers, and transport vessels, which arrive for the purpose of supplying, for 12 months, the Naval Reserve Petroleum Station Number 4.

It should be noted that the northwest extremity of North America was discovered, hence, prospected, much later than the northeast extremity of Asia, which faces it on the opposite side of Bering Strait. It was by way of this approach that the Russians first discovered the northwest part of North America. For the Americans, in the present international situation, this region represents, above all, a frontier territory not only border-

ing on the Arctic Ocean, but also on the common moat of the Bering Strait which barely separates Alaska from Siberia.

As on the opposite side, the American Arctic is being supplied with meteorological-radar stations and air bases. In Alaska, the principal fields are Anchorage-Elmendorf, Fairbanks, Ladd Air Force Base, and Eielson Air Force Base, connected by highway and railway with the open sea of the Alaska Gulf. The famous Alcan route was not built until after Pearl Harbor, when communications by sea with the southern part of Alaska appeared threatened. Operation *Bluejay*, the installation of a strategic air base at Thule, was launched by the Americans in March 1951. The pathfinder group, carried by plane, was followed by a convoy of 50 freighters and tank vessels, which unloaded 3,400 tons per day for 2 months. Today the base comprises 494 acres of barracks and reservoirs, nearly 2 miles of runways, and 3¾ miles of ocean wharves. It is reported to have cost 263 million dollars. It is located about 1,250 miles from the Soviet "Thule" of Franz-Josef Archipelago and 930 miles from Spitsbergen. In place of being the peaceful bridgehead of the American-Asiatic lines of communication, it could be the American outpost of aerial interception in the northeast as Fairbanks is in the northwest.

Strategic Interest

Since the time of Papinin's experiment, the necessity for meteorological observations in the Arctic itself for ensuring the security of flight is no longer argued. These may be conducted by means of air-transported stations of the Papinin type. As a matter of fact, the Arctic Ocean is an inland sea filled with a multitude of natural airplane carriers drifting side by side. One can always establish himself on one of them, but the odyssey of the four Soviet islands showed that if one embarks on a floe, the risk of finding oneself suddenly swallowed up or crushed by an unexpected break in the floe, is very great. There is great interest in discovering ice carriers that are more solid and this has been evidenced in the study of icebergs.

The floe, as we have seen, is a more or less extensive piece of the frozen surface of the sea. The iceberg, on the contrary, is a piece of a land glacier that has slid into the sea. It is, therefore, made up of the accumulation of centuries of snow. The largest glacier in the Arctic region and surpassed in size only by the Antarctic Continent, is the icecap of Greenland which, in places, is more than 9,800 feet thick—or the altitude above the sea of what formerly was considered as the central mountains of Greenland, but which, in fact, is nothing more than an enormous accumulation of snow transformed to ice, set in a series of mountainous islands. In other words, if its icecap were melted, Greenland would appear as an archipelago, or a Spitsbergen, deeply cut by fjords or inland seas. It is acoustic sounding that enables us now to determine the thickness of the icecap.

Other smaller glaciers exist in the northern part of Ellesmere Island and in Spitsbergen. Sliding almost imperceptibly from the coast into the sea, when the buoyant effect of the water is sufficient, the overhanging portion breaks off and begins to drift. This is the origin of the icebergs, once so greatly feared by navigators. They drift along the two coasts of Greenland and melt or run aground south of Newfoundland. These icebergs do not penetrate into the Arctic, but, since 1946, American planes equipped with radar, flying daily over the icepack for the purpose of making meteorological observations, had detected, in the fog, an "unknown island" 300 miles north of Point Barrow. Subsequent observations showed that this "island" was moving and that, therefore, it could be only an enormous iceberg approximately 16 by 19 miles

in size and rising nearly 200 feet above the water.

It is quite obvious that the drift of such a mass, which depends on the combined action of the winds and ocean currents, will be very different from that of the floes. There is, between these two floating objects, a difference comparable to that between logs floating in a stream and a great liner of the *Normandie* type. The iceberg has its own movement among the floes and this explains the fact that the ice island discovered in 1946, north of Alaska, was back again close to its parent glacier, the Ellesmere Island glacier, in 1951, having escaped the surface drift toward the Atlantic. It may, therefore, with its sisters, continue to circulate indefinitely in the central Arctic Ocean, except for periods when it may be grounded. These drifting islands provide magnificent platforms for observations in the Arctic, and the Americans have built landing fields and meteorological stations on them. Excavations may eventually be made in them and they can be provided with means of propulsion. Finally, it will be noted that beyond the limits of these ice airplane carriers, we may parachute down robot weather stations onto the floes—which the Germans made use of during the last war—as well as robot submarine detecting stations operated by ultrasonics, developed from the sono-buoys used in the open sea.

Operations Under the Ice

If the plane has conquered the space above the icepack, the submarine, realizing Jules Verne's dream of the *Nautilus*, has conquered the space below it. Thanks to its detection apparatus, it is able to detect submarine obstacles such as icebergs, and to come up for breath between the floes like Papinin's polar bears and seals. In case of necessity, it is able to penetrate the 10 feet of ice by means of an electrically heated snorkel, and breathe, observe, and transmit its observations. Specially equipped submarines can, therefore, operate in the Arctic as Arctic radar pickets, as guided missile launchers in the vicinity of the enemy's coast, or even participating in air-ice rescues of aviators who have been forced down on the icepack—an activity which should be carefully organized in case of trans-Arctic strategic air operations.

Technique of Operations

Action, simple survival, even in the desert of ice, poses problems as terrible as those our desert forces have to solve in the vast expanses of hot sand and burning sun. In the winter, when the thermometer goes down to 58 degrees below zero Fahrenheit even the best equipped men court death if they remain outside very long. The systematic studies effected by the Americans in the past few years have led to the knowledge that a man loses 2 percent of his capacity for action for each degree of drop of temperature below the freezing point, which leaves us to conclude that at minus 58 degrees, he no longer has much left. It is known that the wind aggravates the situation to an extent evaluated at 1 degree of temperature drop for every increase in speed of 1 mile an hour. This fearful handicap can be greatly lessened by long training and the employment of equipment better adapted to the protection of the man against these low temperatures.

In addition to the great annual exercises conducted since 1946, the Americans have established permanent training and testing centers in Alaska, notably the Army Training Center at Big Delta and the United States Air Force Arctic Indoctrination School at Nome, more familiarly called the Survival School, which states in a striking manner its essential purpose: the acclimation of men coming from temperate climates to survival in an Arctic zone under the worst conditions.

It is well known that the strengthening of the morale of those involved lies at the base of all preparation for perilous missions. It is particularly necessary here, for the reason that this morale is sorely tested, especially in the case of aviation, in the face of anxiety over possible forced landings or parachute jumps in the demoralizing isolation of the "great white silence." All resignation to one's own fate means death. It is necessary, above all, to justify the confidence of the men in the efficacy of the aid provided, on the one hand by their equipment and their first aid kits; on the other, by their own skill in taking advantage of local possibilities, as negligible as these may appear to uninformed and untrained persons.

Inversely, it will be recalled that, at the time of the fighting on Attu, the American troops who were badly trained and poorly equipped lost more men from the cold than from the fire of the Japanese. The latter, however, offered strong resistance to the cold. It is self-evident, therefore, that the problem consists in creating calories and in conserving them by means of as perfect an insulation as possible. These calories must be provided by means of a specially developed diet. It is well known how eager the Eskimos are for fats which are repulsive to the stomach of the man from the south, but which are necessary to them for providing calories for their bodies. The experiences of the great Operation *Musk-Ox* of the winter of 1946-47, led to raising the daily ration from 3,000 to 5,000 calories per day by means of substances of large energy value, such as fats and sugar.

The problem of individual insulation was the object of numerous experiments during the same exercises. The Canadians arrived, at that time, at the following formula: coarsely woven woolen undershirt, knitted woolen sweater with rolled collar, woolen drawers, leather trousers, parka lined with ribbed velvet and provided with a hood lined with fur, two mufflers, three pairs of mittens, two pairs of woolen socks and felt boots over which are drawn *muk-luks*, and chamois-skin mask with goggles to protect the eyes from the glare of the snow. Freezing of the extremities of the body: feet, hands, nose, and ears, and accidents to vision are particularly to be feared. At extremely low temperatures, a bare hand becomes white in 2 minutes and would almost certainly have to be amputated after an hour of exposure to the open air. The men are taught to keep a watch over one another in order to detect any whitening of the visible parts of their faces. The smallest wound, even slight, can very easily cause the victim to suffer a serious drop in body temperature. The wounded man must be immediately wrapped in a warm medical bag—made for this purpose—and be made to take warming drinks. Perspiration is to be carefully avoided, as it destroys the insulation of the body and is likely to cause chill and freezing. The group leader must limit the exertions of his men and each of the men must keep watch over himself in order to take off or replace, judiciously, his outer garments in order to avoid all perspiration. According to the slogan repeated at the School, one must know how to keep himself "comfortably cold" all the time.

Men finding themselves either intentionally or accidently far from permanent, organized shelter could not survive if they did not possess portable shelters or means for constructing one rapidly with local means. The pupils of the Nome Survival School, after training, are left out for 3 days on the icepack or the tundra for the purpose of putting their knowledge into practice. They must be able to survive solely with the help of the survival equipment provided for that purpose in every plane or even with the aid of the kit attached to the parachute of pilots of the single-seat fighter planes. They learn not

to leave the plane which has been forced down, in order to facilitate their discovery by rescue planes; to immediately construct an igloo with snow, or a hut by breaking branches; to set snares for the capture of small game; or to fish—as the Eskimos —through holes in the ice; to use their rescue radio set; to pick up parachuted gasoline stoves for heat; to use inflatable nylon tents and high energy rations.

Movement

Next to the battle against the cold, the problem of movement over the terrain is one of the most difficult to solve both in the Asiatic north and that of North America. Roads are extremely rare. Those which do exist are built only of local material and are not "surfaced." Like the rest of the country, they are covered, in winter, with a thick and, more or less, soft covering of snow.

This snow hinders rapid movements. The men must make use of skiis or snowshoes, depending on the state of the snow. They must carry their baggage on their backs or draw it behind them on sleds as in the days of the first heroic polar explorations. Eskimo dogs are also used, but their employment is limited to small groups because carrying 10 days' ration for a company would require 900 dogs. The situation becomes worse at the time of the thaw and in the summer, because the soil is then transformed into spongy mire over which hovers a cloud of microscopic, but voracious mosquitoes, settling on the skin of the human being through the meshes of his mosquito net. The vehicles that can be used in such terrain are the *Weasels M 29Cs*, amphibian track vehicles of American manufacture, and the Canadian *Snowmobiles* with 16 bogey wheels, weighing 4 tons, evenly distributed over its 16 wheels in such a way that the unit pressure on the snow is less than that of the feet of a man.

In the winter, the latter have proved themselves more robust than the *Weasels*, but in the summer, only the *Weasels* are able to wallow their way through the muskegs and to cross rivers, lakes, and smaller streams by their own means. In suitable snow, a *Weasel* is able to tow a dozen skiers. The amphibian track vehicle of the *Weasel* type is the "ship of the desert" of snow. Normal, but carefully winterproofed, tanks—tanks equipped for very low temperature operation—may be used in winter when the marshes and bodies of water are sufficiently frozen to bear their weight.

Operation *Musk-Ox*, comprising 50 trained men equipped with *Weasels* and *Snowmobiles*, leaving Fort Churchill on Hudson Bay on 15 February 1946, arrived at Edmonton on 5 May 1946 after having covered 2,800 miles in 80 days, by way of Denmark Bay, Great Slave Lake, Great Bear Lake (Port Radium), Fort Nelson, and the Alcan route. Small *Norseman* planes supplied the expedition by parachute or, when possible, landing on whatever terrain there was available as it progressed. In addition, they rendered great service in reconnaissance and the detailed selection of the itinerary.

As for movements by sea—in spite of the icepack—these can be effected; either by means of submarines especially equipped for navigating under the icepack, as we have previously stated, or by means of more and more powerful icebreakers capable of opening a passage through the floes. The United States has under construction an icebreaker of 8,000 tons, 305 feet long, capable of breaking a path through floes nearly 20 feet thick by which they hope to reach the port of Thule in all seasons.

Combat

All known arms may be employed in the Arctic provided they are winterproofed and also by observing special precautions such as keeping them in a warm shelter up to the moment of their employment

and the use of nonfreezing lubricants. Repairs in the field take five times longer than in a temperate climate. In a general way, surface operations must be performed at a slow pace. Only aviation is able to maintain its speed and surprise factor if not efficacy and constancy of effort.

Conclusions

From the point of view of international communications, the Arctic offers the most direct air routes between the northern parts of the two hemispheres. The present political situation prevents the use, for this purpose, of the Soviet Arctic zone. The Arctic routes of the Western World which pass nearest this "forbidden zone," are arcs of great circles intersecting one another at Thule: San Francisco-Seattle-Thule-Narwick-Stockholm; London-Thule-Fairbanks, with prolongation by way of the Aleutians, to Tokyo. The *DC-6, Hjalmar-Viking*, made the flight: Oslo-Thule-Anchorage-Shemya-Tokyo, in 53 hours on 23-25 May 1953.

From the strategic point of view, the Arctic is a "no man's ice" between the most extended and most contiguous borders of the leaders of the present political blocs. It is only across this glacis that they are able to deal one another any serious, direct blows, but the respective geographic situations of the ensemble of the two blocs give to this zone of direct contact a different interest for each leader.

For the United States, which has at its disposal bases around the entire circumference of Eurasia, in regions where the climate is much more favorable to combined arms operations and at much shorter distances from the eventual principal objectives, the Arctic is not the most favorable direction. For the Soviet Union, on the contrary, there is no other direction that will permit her to reach the territory of the other leader. Her bases of departure are the Chukot Peninsula opposite Alaska, the Taymyr Peninsula opposite the Canadian Far North, and the Kola Peninsula opposite Spitsbergen, Greenland, and Labrador.

In the present state of her territorial extension, it is only from these regions that the Soviet strategic aviation could hope to reach the territory of the United States, while her missile-launching submarines could set out from the Sea of Okhotsk and the Barents Sea and combined arms operations could be counted on across the Bering Strait. The Arctic, in spite of the characteristics and the publicity that have been given it, possesses a strategic defensive character for the Americans. It is, however, the only route open to a Soviet offensive strategy aiming at the North American territory.

Some time in the not too far distant future, operations in the Northeast will be conducted with the same ease and efficiency as in temperate zones. Obtaining this ease of operation is the challenge which must be accepted by all military agencies if it is to be successfully overcome.

Lieutenant General Charles T. Myers

The Gateway to Leningrad

Translated and digested by the MILITARY REVIEW from an article by Erhard Raus in "Wehrwissenschaftliche Rundschau" (Germany) March 1953.

THREE weeks after the beginning of the eastern campaign, a strong all-arms combat team succeeded in breaking through the Soviet lines and in establishing a large bridgehead across the Luga, 65 miles from Leningrad. How this combat team fought its way there and what tactics it employed for weathering the furious Soviet attacks, will be developed in the following article.

The Advance

On 6 July 1941, Combat Team "R" crossed the Duna and broke through the Stalin Line after a 2-day battle. The concrete bunkers of the Line were echeloned to a depth of nearly 2 miles. The blitz advance then continued in the direction of Leningrad.

At Porchow, on 11 July, the combat team had suddenly to wheel approximately 90 degrees to the northwest to aid the 1st Armored Division which was fighting hard on the road to Leningrad, then to establish a bridgehead at Lijady. After very difficult marches and fighting, our forces were able to take the bridges over the Pliussa in surprise attacks and to occupy Lijady. Scarcely had the Soviet engineers and partisans been driven out of this locality, however, when the group received the order to push on farther northward in behind the enemy's front, and to seize possession of both bridges across the Luga at Porejtsche in order to "open the gate to Leningrad." These words lighted a glow in the hearts of the men like an electric spark. All weariness was immediately forgotten. Even before nightfall, the motors of the vehicles, which had barely come to rest, were again purring. Unit after unit rolled forward. The men already had their hopes set on reaching their objective, about 65 miles away, in a few hours.

But with the entrance of the forces into the marshy region of Samro Lake, the road which, thus far, had been very good, suddenly turned into a marshy path of the worst type. Tanks and cannon bogged down. The same fate befell the tractors and other transportation which came to their aid. Only after hours of effort on the part of all the officers and men who, tormented by thousands of mosquitoes, brought up timbers, boards, logs, brush, and the corduroy strips we had brought with us, did our forces succeed in passing the marshy area. Other marshy places followed. Only after 8 hours of walloping in the darkness, the mud, and the sand, was a usable road reached. Then, after a village which had been set on fire by the enemy had been passed and a burning bridge had been extinguished, our forces rolled smoothly along toward the longed-for objective. Suddenly the cry, "enemy planes" rang out. They did not attack us, however, but fired light signals and dropped leaflets. "Make yourselves known or we'll fire," the Soviet interpreter translated. But the column continued peacefully to advance, nor did it stop when a second demand was made. Finally, the planes left. Their doubt was understandable, too, for the formation was traveling several miles in back of the Soviet Peipus Lake front, in the direction of Leningrad. Our indifference appeared to have reassured the Soviet fliers.

Just an hour later, both Luga bridges had been occupied without fighting by the German units, and their completely surprised security forces were taken prisoner. In 3 days and nights of continuous wrestling with hostile nature, Combat

Team "R" had advanced 125 miles and at 1000, 14 July, stood 65 miles from Leningrad.

Finally, the attack by a few German tanks on the nearby Soviet airfield of Jastrebina, answered the earlier request of "make yourselves known" in an unmistakable manner. We did not have to wait long for a return call.

In the meantime, our arrival at our destination and our formation of a bridgehead had to be reported. However, affected by the presence of the vast, marshy forests, our radio was not able to cover the great distance. Only a radio car, dispatched about 35 miles to the rear, was able to get the message through.

Scarcely had the car returned when an enemy regiment had the approach route blocked. The five tanks soon came back from their raid. Their trip through the hangars and over the planes standing about had been a rare picnic to them. The trail of ruined matériel left behind them burned brightly. Flames that could be seen from afar and great clouds of smoke spread the alarm to all the airfields in the Leningrad area, and these were quite numerous. Not an hour had gone by until the dead-tired troops, who had scarcely settled themselves in their assigned sectors, were suddenly, and not very gently, aroused from sleep. A rain of bombs dropped down from the skies on villages, farms, the road, and edges of the woods. The localities of Murawina and Porejtsche, lying on both sides of the bridges, were very generously remembered. The headquarters of the combat team was located in the first town. When it had lost its shelter, it was forced to flee to the nearby woods as the troop units had been forced to do.

This was sufficient warning. Everywhere, foxholes were rapidly dug for protection against tanks and air attacks, and solidly covered and joined to form narrow, zig-zag trenches. Wing after wing of planes now attacked in waves until the day came to an end, and this was, unfortunately, quite late. The enemy however, immediately abandoned his low-altitude, exhibition flying when our quickly organized antiaircraft defense caused him considerable losses. Immediate help from our own aviation was not to be looked for since its ground organization had not been able to keep up with the rapid advance of our armored units.

The first night passed by quietly. It was clear, however, that the enemy would leave no stone unturned to eliminate the threat to Leningrad. Infantry and tanks were already advancing over all railways and roads. These forces consisted of two Leningrad Proletariat Divisions and one armored brigade, which had the mission of liquidating the German formations on the Luga, and of regaining possession of the bridges.

But the German defense was ready to stand fast against any superiority of forces and to continue to hold until help came. The commanders were fully aware that their situation would become very serious in case the main body of forces, with which contact was now broken, did not arrive soon.

German Defense Plan

The enemy matched our strength in the number of tanks. In regard to infantry, he had 12 times the number of the German forces. This circumstance had to be dealt with by the defense, by the most effective use of its forces and the best employment of the terrain. It was clear, in advance, that our forces would not suffice for forming a continuous line of defense around the bridges and the equally important road junction of Iwanowskoje. Nevertheless, these two important areas and the intervening terrain had to remain in our own hands if, as ordered, the bridgehead was to become the gateway for our attack on Leningrad. This principal requirement would not have been met by a

narrow bridgehead, leaving the road junction point in the hands of the enemy, for the reason that it would not have made possible, later, the strategic concentration of stronger German forces. A tactical procedure had to be adopted for the defense of the 3-mile long and only a few hundred yards-wide strip which the enemy was able to attack from all sides, by which, at any cost, the bridges and the road junction would remain in our own hands and the intervening space could be repeatedly cleared of the enemy. Therefore, a fixed defense of the bridges and of the road junction point of Iwanowskoje in connection with a mobile defense of the long intervening zone was indicated. The point of main effort clearly had to be the road junction since its possession also was decisive for the possession of the bridges. This solution was likewise indicated by the nature of the terrain and the cover offered by the ground. The bridgehead was shielded on the north by an artificial lake 9 or 10 miles long and on the east by a ditch of about 3¾ miles with steep banks. Both were absolute tank obstacles and not easy to cross, even by infantry. On the west, a marshy forest zone which could not be traversed by tanks, but which could be traversed by infantry in several places, was close to the road. South of the bridgehead, extensive, marshy forests spread out which, in certain places, were passable for smaller units and lighter weapons. Here a security force and a small number of reserves sufficed. Large enemy units of all arms which could represent a serious threat to the bridgehead were forced to make use of the road, on which it was possible to oppose them with tanks. Enemy tank attacks, due to terrain conditions, were likewise bound to the road. Only at the west entrance into Iwanowskoje and in the bridgehead were tanks able to move in a narrow strip of terrain on both sides of the road. The bridgehead also possessed the advantage that it was not observable by the enemy from any side so that enemy artillery was able to fire only by the map or with air observation. The latter procedure was, at that time, as yet unknown to the enemy, and he had hardly practiced the first. Because of these facts, the occupants could only be seriously threatened if the enemy, with his greatly superior masses, attacked simultaneously from all sides with centralized command or if supplies were cut off from the combat team for longer than a week. Both were improbable.

Distribution of Forces

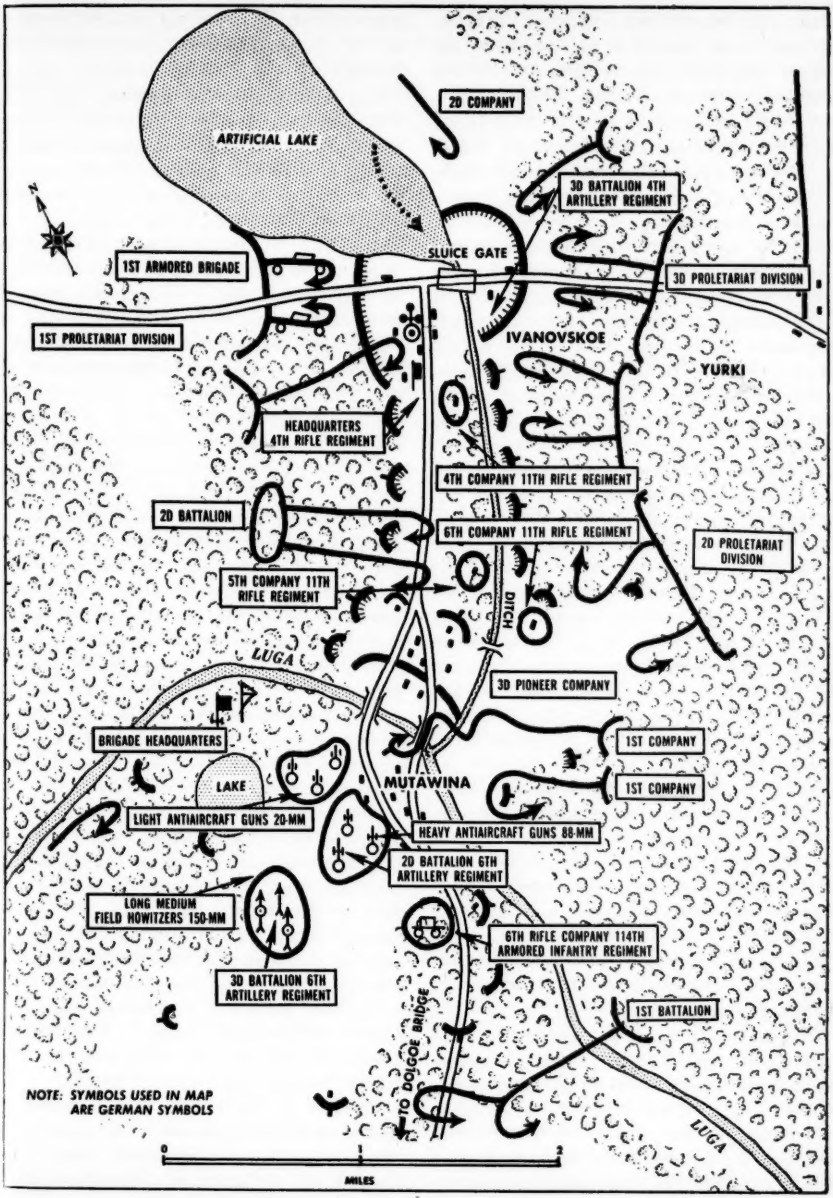
These considerations formed the backbone of the defense. Accordingly, the central point of the defense was established at the road strongpoint of Iwanowskoje and there the main body of the 4th Rifle Regiment was engaged, with a battalion to the east and west of the locality. The Regiment had the task of blocking the two road sections and of maintaining a watch over the adjoining open flanks. For defense against heavy tanks, it was assigned 8.8-cm antiaircraft cannon and 10-cm (field) cannon. It had available a rifle company and an armored company as a reserve. For the immediate protection of the bridges, the combat engineer commander was responsible, and he had under his command, in addition to his own forces, a number of light antiaircraft cannon. The surveillance and security of the area south of the Luga devolved on the 5th Rifle Company of the 114th Regiment. It could, in case of necessity, draw also on the crews of all the trains stationed in this area, which could be given the alarm, quickly assembled, and engaged. Each headquarters had to provide for its own security. The entire artillery, antiaircraft cannon, and antitank guns had to be ready at any time to repel the enemy in close-range combat with their weapons, or to be engaged as infantry in a counterattack. Directly at the

disposition of the brigade commander were the artillery commander and the tank commander with two tank companies, which were intended for mobile engagement on both sides of the Luga. They were automatically to attack every enemy advancing on the road, and crush him. A few of the headquarters' tanks were to remain continuously on the south bank of the Luga and in case of emergency, to cooperate immediately with the 6th Armored Company of the 114th Regiment. The plan called for location of the point of main effort of the artillery fire in the area on both sides of the road junction point. With this in mind, the artillery commander was given the order to operate in direct co-operation with the 4th Rifle Regiment. Constant personal contact of the brigade commander with his forces assured co-operation of all arms and banished all possibilities of misunderstandings.

Development of the Battle

As expected, the enemy aviation was on hand early on the second day (15 July). But it was surprised to find a completely altered picture. There was no German soldier, no weapon, no vehicle, or no combat installation to be seen. Everything was buried in the ground and camouflaged. The usual terrain scenery stretched quietly and peacefully before its eyes. Was it possible that the Germans had withdrawn, after the destruction of the Jastrebina airfield? This Soviet hope was suddenly dashed to pieces as the first bomber wing drew near the Luga bridge and was there broken up by a hail of projectiles from all the guns of the antiaircraft defense. Their bombs missed their target. Two trails of smoke in the sky testified to the fact that the defense fire had been aimed correctly. The enemy fighters which followed, also suffered losses in their low-level flights from machine-gun fire which came at them from different directions. Nevertheless, there followed at short intervals, constantly repeated attacks on the bridges and presumed troop targets, which were to be softened, until the time of the attack by the infantry and tank formations which were only then assembling.

These arrived, during the course of the forenoon, and plunged forward at a rapid pace on either side of the road leading from the west, against Iwanowskoje. The Luga bridges were supposed to be in their possession by the end of that same day. Suddenly, they were struck by the fire of the German batteries whose concentrated fire forced the Soviet infantry to the ground. Their tanks halted, but soon, in open order, rolled ahead again. Driven ahead by their officers and commissars with their pistols in hand, the infantry followed in small groups and in short bounds. Their tanks, as pace setters, in wedge formation and firing as they came, approached the German lines in an effort to break through. These tanks were suddenly met by the fire of the 8.8-cm antiaircraft and 10-cm cannon from their concealed positions. The tanks were hardly 550 yards away. After every shot, a column of smoke rose into the air. The artillery and machine-gun fire had also torn large gaps in the ranks of the infantry. The attack came to a halt. Other infantry units followed. They were supposed to get the attack into motion again. They, too, had been hard hit by the fire of the heavy batteries. It was, for the inexperienced enemy, an evil baptism of fire. Irresolute movements in all directions and tanks attempting to escape after the loss of a dozen of their number were certain evidences of a crisis. Just at this moment, 30 German tanks, all guns blazing, rushed forward in the counterattack, knocked out additional Soviet tanks and scattered the Soviet infantry. The enemy attack had failed, and he had suffered heavy losses. After a short pursuit, the tanks were ordered back again. This was a rude blow to the Proletariat Divi-


2D COMPANY
ARTIFICIAL LAKE
3D BATTALION 4TH ARTILLERY REGIMENT
SLUICE GATE
1ST ARMORED BRIGADE
3D PROLETARIAT DIVISION
1ST PROLETARIAT DIVISION
IVANOVSKOE
YURKI
HEADQUARTERS 4TH RIFLE REGIMENT
4TH COMPANY 11TH RIFLE REGIMENT
2D BATTALION
6TH COMPANY 11TH RIFLE REGIMENT
2D PROLETARIAT DIVISION
5TH COMPANY 11TH RIFLE REGIMENT
DITCH
LUGA
3D PIONEER COMPANY
BRIGADE HEADQUARTERS
1ST COMPANY
LAKE
MUTAWINA
1ST COMPANY
LIGHT ANTIAIRCRAFT GUNS 20-MM
HEAVY ANTIAIRCRAFT GUNS 88-MM
2D BATTALION 6TH ARTILLERY REGIMENT
LONG MEDIUM FIELD HOWITZERS 150-MM
6TH RIFLE COMPANY 114TH ARMORED INFANTRY REGIMENT
3D BATTALION 6TH ARTILLERY REGIMENT
1ST BATTALION
TO DOLGOE BRIDGE
NOTE: SYMBOLS USED IN MAP ARE GERMAN SYMBOLS
LUGA
0
1
2
MILES

sion, and taught the lesson of caution. It was in no condition for renewing the attack on that day, which the Soviets were accustomed to doing, frequently.

In the meantime, the 3d Proletariat Division, pushing ahead through Jurki, had assembled for the attack on the edges of the dense woods east of Iwanowskoje. Without fire support, it moved forward in the early hours of the afternoon in several dense waves, one behind the other, over the open terrain, on both sides of the road and in the direction of the impounding dam. Our own artillery, which had already been firing into the assembly area, now laid down a flanking barrage ahead of the brown masses. Defense fire was also laid down in bursts on the approaching masses by numerous machine guns, tanks, and other heavy weapons. The attack broke up in a few minutes. A field of dead was the only result of this senseless effort. But in spite of this, the attack was repeated three more times that day, with the same results. The losses of the German rifle troops, nested down in foxholes, and in recesses in the dam of the small stream flowing out of the artificial lake, were small. The following 2 days were marked by heavy artillery fire which always began at 0600 in the form of mass fire and which was repeated before all attacks. This method the enemy had used previously. These tactics won not a foot of ground for the enemy, but brought him very heavy losses. The mass fire of the enemy artillery and the continual enemy air attacks did cause some losses and unpleasant disturbances, but they were unable to affect the structure of the German defense.

Finally, the enemy recognized the uselessness of his efforts and sought success with other tactics. He went over to the defense on both sides of Iwanowskoje in order to free forces for his new undertakings. He pushed his west front back a bit and dug in. In the eastern sector, he remained in the open just outside the edge of the woods and constructed cover for himself.

His main objective became, now, the 220-yard long Luga bridges which, so far, had suffered but slight damage and which could be repaired quickly. They were to be taken by concentric attacks from all directions. But the co-operation of the Soviet units failed here also. The plan was correct and dangerous, but its execution frittered itself away in temporarily and spatially dissociated, individual operations. First, the enemy attempted to take the bridges by means of a surprise attack. To this end, during the night of 17-18 July, a company of the 2d Proletariat Division slipped across the small stream north of the old bridge, at dawn attacked the weak security force, occupied the bridge, and then plunged ahead toward Murawina to seize possession of the new bridge. But here the company ran into machine-gun units, which had been engaged to secure the south bank of the Luga, and were stopped by them. The next moment, however, the alerted armored 6th Rifle Company of the 114th Regiment was on the spot. It attacked the enemy companies with their armored vehicles at the moment when they, alarmed by the sound of the approaching armored vehicles, were attempting to escape across the old bridge. The enemy company was wiped out to the last man. As a result, the enemy's dashing undertaking ended in such a failure that he felt no further desire to repeat it. A drive against Murawina carried out immediately afterward by an enemy company on the far side of the Luga was probably destined to bring aid to the unfortunate company. But the attack came too late. It was easily repulsed by the machine-gun security force.

During the forenoon, a fighter squadron again appeared just over the woods, exactly in the place where the *Ratas* were accustomed to appear as they approached

Murawina, and, as usual, they were taken under fire by our machine guns. It proved to be, however, the first German fighter squadron arriving at our bridgehead. Our well practiced gunners had immediately brought down the leading plane which, fortunately, was able to land in our area. The German squadron captain climbed out of it, only slightly wounded. He found life in the encircled bridgehead very unenjoyable. During the day, several battalions came out of the marshy woods from the east and the west, and headed for the road, but they were turned back by the bank securing force of the 2d Battalion of the 4th Rifle Regiment supported by tank fire. The forces coming from the west, always succeeded in reaching the road. However, each time they were caught in the tank fire from the north and south, and driven back into the woods. At night, the field kitchens and combat trains rolled unhindered over the bridges to the troops.

In the Iwanowskoje area, there occurred only scattered local actions. An attempt by the enemy, coming from the north with a weak force along the artificial lake, to reach the sluice bridge, was easily repulsed. On the other hand, a surprise attack coming from the west, out of the woods, conducted by an infantry unit accompanied by a heavy tank, was not so pleasant. Its objective was the crippling of the command, which was presumed, by the enemy, to be located in the church area. It was true that the German forces were quickly able to hurl back the infantry which had broken through the security forces, but the heavy tank came out of the woods so rapidly and so close to the well camouflaged 10-cm cannon, that the latter never got a shot at it. It circled around the church and ran over everything that caught its eye—including the regimental headquarters. Our own tanks had to look on helplessly, since their fire was ineffective against this monster. Only an especially daring noncommissioned officer was able to bring about its end. He rushed at the tank and, leaping onto it, fired time after time with his pistol into the vision slot of the driver. Injured by lead fragments and hindered in his observation, the driver was forced to turn around in order to oblige his troublesome guest passenger. The tank was compelled to abandon its well chosen position and again passed close to the 10-cm cannon. Just before it passed through the German line, the noncommissioned officer leaped down and left the giant to its fate. The smallest weapon had put the heaviest tank to flight. The tank had scarcely entered "no man's land" when a direct hit from the 10-cm cannon caused it to burst into flames. On the same forenoon, an enemy company appeared on the marshy roads behind the bridgehead, with the aim of attacking in the artillery area and, by means of shock troops slipping along the Luga, of wiping out the brigade headquarters. Both undertakings came to nought due to the watchfulness of the security forces. The enemy was recognized before it was too late and repulsed. An attack conducted by an enemy battalion around the noon hour on the south shore of the Luga, coming from the marshy woods and directed against the trains parked in the fir woods, was more menacing, however. This surprise attack let loose a wild hail of bullets which set everything in confusion. The enemy succeeded in crossing over the road and in plundering a number of motor vehicles. Not until it passed in front of a weapons repair shop, which had at its disposal several new machine guns and a great deal of ammunition, was the enemy attack brought to a halt. Just as the enemy was attempting to reorganize his lines with the intention of continuing his attack with renewed energy, he was attacked from the rear by the 6th Armored Company of the 114th Regiment, which had hurried to the scene of battle,

and many of the enemy were cut down by its fire. In wild flight, the remnants of the battalion scattered, leaving all their booty behind. At the place of the attack, soon afterward, stood a cross at a burial mound, with the inscription: "Here rest 157 fallen Soviets."

Even the enemy artillery changed its manner of operation. It ceased its useless fire into the bridgehead and shifted the point of main effort to the bridges. From this time on, over a thousand heavy shells whistled over the woods daily, toward the objective which, however, due to lack of observation, was never hit.

Like swarms of hornets, the enemy fliers fell upon the batteries and every other recognizable target. They had soon recognized the fact that the German antiaircraft artillery, due to lack of ammunition, was becoming crippled. In the afternoon they were forced to cease their fire completely. The few shells they still had, had to be reserved for antitank defense. Even the machine guns were no longer able to combat anything but particularly troublesome low-level fliers. Even the artillery had to place strong limitations on its fire in order, at least, to have enough ammunition left for effective co-operation in eventual difficult situations.

Ammunition Shortage

The ammunition problem became increasingly the principal concern of the command. As long as the infantry and tank ammunition was still adequate, the bridgehead was not in danger. But this, too, could rapidly run low if used to repulse several major attacks. Fortunately for the German forces, the enemy was so exhausted by his heavy losses, that for the time being he did not have the strength for another attack. In a few days' time, however, his weakened forces could again be brought up to strength, and the performance could start all over. Whether the combat team would be able to weather the same kind of attacks without sufficient ammunition was very doubtful. And still there was no sign of the main body of forces of the armored corps that was supposed to be following us. Had it been halted, or engaged elsewhere? That was the anxious question on everybody's tongue.

A little night episode concluded the relatively quiet fifth day. The security forces on the shore of the artificial lake reported, before midnight, the sound of oars slowly approaching the sluice. They were plainly audible in the deathlike stillness. The command had, however, counted on the eventual intention of the enemy to destroy this important installation and had taken steps to prevent such a catastrophe. Wire nets and floating mine fields ahead of the sluice were placed there to halt the enemy before he could reach his objective and to alarm the machine-gun nests which were provided with searchlights, in case the approach of the enemy was not heard or observed. In this case, as expected, the enemy had neglected to drown out the sound of his oars by means of combat noises. He was, therefore, expected. He was met with the glare of searchlight beams and machine-gun fire and destroyed. His undertaking had failed miserably and the danger of our being swept away by rushing masses of water, eliminated.

At dawn of the following day, the thunder of cannon was suddenly heard to the south. Soon afterward, the report arrived of the approach of the 3d Battalion, 118th Regiment, 36th Motorized Infantry Division, which had branched off from Shabsk where the 1st Armored Division had formed an additional bridgehead, and had been pushed forward along the south bank of the Luga as a reinforcement. It received the order to rest in the woods south of Murawina during the day, and not to reinforce the west front of the bridgehead until night. This wait was strictly neces-

sary in order not to expose the forces to the attacks of the enemy aviation and the artillery fire that could have spelled their doom. This day of battle, therefore, come what might, had to be weathered alone by the forces already there. Unfortunately, however, the battalion commander set out in the daylight hours to explore the front sector that was to be taken over, and was killed, along with a companion, on the way. The battalion itself reached its sector after nightfall without losses. Supported by an armored company back of it, it then held this sector against all the attacks that followed.

As much as this addition to the strength of the German forces was welcomed, it had, nevertheless, not changed the critical situation with respect to the ammunition. The battalion had had to make the journey from Shabsk to the bridgehead on foot, through the marshy woods, so it brought along only what the soldiers carried and what they were able to bring on a few Soviet farm carts. The main body of the corps, as was now known, had become mired down on the approach route—which had been completely cut to pieces by the combat team when it had passed over it—and it was days before it was able to get out of the marshes by the construction of a corduroy road several miles long.

Later attempts of the enemy to get to the bridges also failed. These successes were encouraging, it was true, but they used up the ammunition dropped by planes in the artillery area. The ammunition crisis could be alleviated by the use of aerial drops, but not eliminated.

At this time a German fighter plane dropped the message: "Enemy regiment with artillery, approaching Murawina; at 0930 head of column at Dolgaja bridge." According to this bad news, the enemy could be in the rear of the bridgehead in 3 hours. If he attacked simultaneously there and on the two flanks, the death-knell could be tolled for the combat team, for without ammunition, even the bravest forces are doomed to defeat.

Nevertheless, something must be done quickly—but how? Throw all our tanks ahead at the enemy? Then the bridgehead, in case of a repetition of the last enemy attack, would be lost, for only the tanks still had enough ammunition. They were, therefore, the backbone of the defense. Such a maneuver could mean suicide for the combat team. The bridgehead could not, therefore, be weakened by a single man or weapon. Our only recourse, therefore, was defense by the forces engaged on the south bank of the Luga. A passive defense would have led to a squeezing together of the combat team in a narrow area and, thereby, created the danger of its being overwhelmed by the enemy superiority. Only a daring decision could eliminate all dangers. This was: "Attack, ourselves."

Decisive Attack

The 6th Armored Company of the 114th Regiment was immediately alerted and reinforced by three tanks from the headquarters. The company commander had just received the order when suddenly, from the south, the thunder of cannon and the sound of violent machine-gun fire could be heard. This indicated that the enemy must be in combat with German forces. That could only lighten our own situation. ". . . so let's go after them," were the last words with which the officer was dismissed. He had scarcely moved away when a radio message from the German 6th Motorcycle Battalion came in which stated that a supply column on the way to the bridgehead was engaged in hard combat on the Dolgaja with a vastly superior enemy, and that it was asking for support. Barely 20 minutes after the departure, the heavy concussions of the tank cannons and raging machine-gun fire could be heard. The armored group had

caught the enemy regiment in the rear (it now having turned on the attacking motorcycle battalion). The armored group had taken the enemy's batteries and heavy weapons under fire and now, with all of its guns blazing, plunged along the road to join the motorcycle battalion. The enemy regiment was seized with panic by the attack on its rear, suffered considerable losses, and disappeared into the surrounding woods. By noontime, the motorcycle infantry and the armored company arrived south of Murawina. Their victory had been complete, the march route was clear, and the threat to the bridgehead banished. The unusual situation, with its hardships and unsatisfied needs, was ended. It had necessitated heavy German losses. This fact was attested to in an impressive way by the field of battle, which resembled a large cemetery. A row of birch crosses, marking the graves of fallen German soldiers, lined either side of the road. In the rear of these, in mass graves, rested 2,000 Soviet soldiers who, through swampy woods and past the wrecks of 78 tanks, had tried to storm the German bulwark on the Luga.

Soon after this, the other portions of the 6th Armored Division had arrived. These were followed by the 1st Infantry Division. They later rolled up the enemy positions on both sides. The gate to Leningrad stood open. The blitz actions proceeded farther.

Lessons

From this example, lessons of a psychological, tactical, and pedagogical nature can be drawn. They are hardly to be separated from one another since in each case, they appeared together and were most closely interwoven with one another.

What was, one may ask, the incentive for the excellent behavior of the forces which, after physical exertions of an unusual sort, successfully faced a vastly superior enemy in point both of numbers and matériel in an absolutely hopeless situation? It was the high goal that stood before their eyes as the mission; the consciousness of superior ability; and unwavering confidence in their commanders and comrades. It was, therefore, psychological factors that were decisive in this case. The German soldier knew what he was fighting for and what importance was attached to the mission of his unit. Only in this way was he rendered capable of his high accomplishments. He was an individual, single-handed fighter and felt himself greatly superior to the Soviet soldier who had been trained for massed engagement. It is, therefore, necessary to take account of these and similar psychological influences at the time of the training of the soldier in time of peace. The confidence of the soldiers in their officers must be won by exemplary conduct, real knowledge, ability, and concern for the welfare of the men. Further, it is important that every commander appear personally at the focal centers of occurrences in order to offer counsel and aid or to be able to make immediate decisions. In critical situations, his presence is an absolute duty.

Of great value, also, was the so-called arms-comradeship, due to which the problem of co-operation of the various weapons was materially facilitated. Thus, for example, the combat team had been composed, in this case, of formations and units which had repeatedly fought together and, therefore, knew one another. There existed a good comradeship between the commanders, which furthered mutual aid on the part of the various arms. It is a sin against the combat ability of forces, when formations are broken up; when sick or wounded are not sent back, again, to their original units; or when supporting arms, without definitely good reasons, are changed. A formation that was welded together by long comradeship had shown itself to be considerably superior in fight-

ing ability to an equally strong force whose officers and men hardly knew one another.

The formation and defense of bridgeheads was one of the most important missions of the eastern campaign, a mission which frequently fell to the lot of the mobile forces. Every bridgehead was, by mission, terrain, situation, strength and means, an individual structure. Hardly one of them, however, had any resemblance to the one on the Luga. The forces which followed later considered its form as insane and were astonished that it had been held under such difficult conditions. But no one was able, even after careful deliberation, to offer a better solution. The results confirmed the correctness of the tactics employed. The bridgehead could never have been held by infantry forces of equal strength alone and still less by armored formations without rifle troops. The organized, harmonious combined action of all arms in the combination of fixed and mobile defense was, in this case, the only tactical recipe.

Independent Activity

As an especial characteristic feature of the tactical procedures in that cramped area, was evidenced the necessity of relying more than is ordinarily the practice, on the independent activity of subordinate commanders. A large part of the success is to be attributed to this.

It became evident that the Soviet forces almost never attacked simultaneously on both fronts, an event which made the German defense easier. This phenomenon was less attributable to their clumsiness in coordinating the activity of adjoining formations, than to the technical difficulties relative to fire associated with the narrow space. All the German artillery fire caught the attacking enemy in his flank, and this was particularly unpleasant for him. Whenever Soviet rifle or machine-gun fire started on the west front, the Soviets on the east front had to seek cover, entirely due to the fact that the fire intended for the German positions, due to its flat trajectory, also landed in the Soviet positions. If there had been a simultaneous attack on the two fronts, the two Soviet forces would have been under the fire of each other. While the Soviets, therefore, mutually endangered one another in opening fire, the disadvantage of being threatened by their own fire disappeared in the case of the German forces, since these turned their backs to one another. On the other hand, all Soviet fire endangered, for the same reasons, both German defense fronts —the one, from in front, the other from the rear. Help in this situation was obtained by the construction of parapets on both the front and the rear, the rear one being a bit higher, and well camouflaged. The narrowness of the area, as well as the cover offered by the terrain in the bridgehead, interfered with the observation and effects of the greatly superior enemy artillery and of the Soviet aviation, which had complete domination in the air. Only on the basis of these facts is it understandable how the German losses could be held within endurable limits, despite the fact that the enemy air forces seldom operated, in the east, with such local concentration and constancy as in this isolated bridgehead which the Soviets had intended, at any cost, to destroy.

BOOKS OF INTEREST TO THE MILITARY READER

REPORT ON THE ATOM. By Gordon Dean. 321 Pages. Alfred A. Knopf, Inc., New York. $5.00.

BY COL GEORGE C. REINHARDT, *CE*

Informative, nontechnical books on atomic energy are much too rare. Mr. Dean's *Report on the Atom* to the American people, based upon his extensive experience, sheds much light in hitherto dim places. The first part of the volume interestingly outlines, without resort to scientific jargon or dodging behind security, the processes and problems involved in the long road from locating uranium ores to recording fissionable material in the Atomic Energy Commission's records. Much material that is new will be found buttressed with clear explanations of some previous mysteries.

A splendid section is devoted to achievements and reasonably foreseeable prospects in the peaceful development of atomic energy. The chapter on isotopes is noteworthy evidence that the miracle of fission has actually begun to improve man's estate on earth, not merely to threaten it. The volume closes with a miscellany on security, atomic progress abroad, and the author's views on "what is really in store for mankind in the atomic age:"

The brief coverage on weapons and military aspects of atomic energy will upset soldier readers. Mr. Dean's charge of "military interference" with the work of the Atomic Energy Commission, and his seeming confusion of stock piles with military power both need clarification. Collectively and individually, members of the United States armed services have long been trained to recognize the supremacy of civil over military authority. As a civilian agency of government, the Commission is unquestionably outside military control. All that was settled by the Atomic Energy Act of 1946. Yet, so vital is the Atomic Energy program to national defense that even an appearance of friction between the military and the Commission should be promptly eliminated.

Mr. Dean's assumption "that the capacity to deliver bombs on targets bears some fixed relationship to the growth of stock piles" suggests a dangerous concept of atomic war potential. Delivery agencies, ours and those of the enemy; means of supporting those agencies; our own and enemy capability for countermeasures, are all factors in the equation which translates size of stock pile into combat strength. The "strategic act," defined by Possony as "the delivery of organized fire power from a base to a target," cannot bear a "fixed relationship" to stocks of ammunition, however indispensable those may be.

But to belabor the military 10 percent of Mr. Dean's *Report on the Atom*, and ignore the enlightening remainder would be unfair, especially for general reading. On peaceful developments in atomic energy, the book offers valuable material for understanding the tremendous possibilities of President Eisenhower's epochal offer, fraught with promise to the future, to share with the entire world our progress in this field.

GOVERNING POSTWAR GERMANY. By Edward H. Litchfield and Associates. 661 Pages. Cornell University Press, Ithaca, New York. $7.75.

BY COL HAROLD F. HARDING, *USAR*

Some 18 American scholars and men, with practical experience in German problems since World War II, have compiled this vastly informative volume which is dedicated to General Lucius D. Clay.

Officers who were engaged in the administration of occupied Germany will find here a wealth of details. An appendix of 15 items reproduces important documents.

Military government specialists will use this book as a reference and a guide for years to come. The lessons and mistakes of 1945-53 are here for those who wish to profit by them. Staff officers cannot ignore the problem of the relationship between the military and civil governments.

I WAS AN AMERICAN SPY. By Sidney Forrester Mashbir. 374 Pages. Vantage Press, Inc., New York. $3.75.

BY LT COL JOHN E. SCHREMP, *CE*

Colonel Mashbir has written a very interesting and readable account of his intelligence activities from the Mexican trouble in 1916, until the surrender of Japan. Commissioned in the Regular Army after World War I, he was sent to Japan as a language student. Resigning his commission, he remained in Japan for several years, learned the ways of the Japanese engaged in intelligence activities, and came to know many of the people who were to play so important a part in later developments. In World War II, he headed and developed the Allied Translator and Interpreter Section of General Headquarters, and was the principal in the handshaking episode when the Japanese delegation arrived in Manila in 1945.

Colonel Mashbir presents a strong case for the development of a permanent corps of highly trained intelligence officers.

AMERICANS INTERPRET THEIR CIVIL WAR. By Thomas J. Pressly. 347 Pages. Princeton University Press, Princeton, N. J. $5.00.

BY LT COL FRANCIS R. SULLIVAN, *CE*

This is not a study of the history of the American Civil War, but of its historiography—the way history has been written. The author makes an excellent survey of representative samples of the field of United States Civil War historiography and historians. He analyzes the points of view of a number of historians and historical schools which are identified with various time periods, from the days of the war to the present (1950s).

In spite of the passage of almost a century since the Civil War, opinions on its causes and effects are still conflicting and diversified. Professor Pressly's analysis indicates that the reader of history must be careful to distinguish fact from mere interpretation of fact.

THE ART OF WAR IN THE MIDDLE AGES, A. D. 378-1515. By C. W. C. Oman. Revised and edited by John H. Beeler. 176 Pages. Cornell University Press, Ithaca, New York. $3.00.

BY MAJ NED A. HOLSTEN, *MPC*

This classic essay in military history, which first appeared in 1885, has been out of print for several decades.

The author surveys the art of war between the battle of Adrianople in 378 and that of Marignano in 1515. He avows that the corollary to such an account is the social and political history of the period.

The author reduces warfare to two simple elements: shock and missile. Shock tactics were dominant in the early Middle Ages, while the missile gained ascendancy in the early modern era.

He attributes the decline of aristocratic cavalry to democratic Swiss pikemen and English archers whose systems helped revolutionize the art of war.

UNITED STATES DESTROYER OPERATIONS IN WORLD WAR II. By Theodore Roscoe. 581 Pages. United States Naval Institute, Annapolis, Md. $10.00.

BY LT COL DONALD L. DURFEE, *Inf*

This book is an interesting study of all of the important actions in which United States destroyers and destroyer escorts took part during World War II.

After a brief history of the development of the destroyer and its part in World War I, there is an excellent description of a typical modern destroyer and its armament.

The many accounts of the exploits of the destroyers and their crews, their individual and collective fights against many varied enemy innovations, as well as against the conventional weapons, are detailed, informative, interesting, and instructive. Wherever our Armed Forces fought, on the sea, under it, or in the air above it, our destroyers were always there giving their best for victory. They participated in every amphibious operation and their fire supported the landing forces. They fought defensively from Pearl Harbor to Australia, and along our east coast and in the Caribbean, and offensively from North Africa to Normandy, and from Australia to Tokyo.

This book is very interesting and factual. It is very well illustrated with numerous photographs, drawings, and charts. In addition to being a fine tribute to our destroyers and to the men who fought in them, it is also an excellent reference book.

HISTORY OF THE GERMAN GENERAL STAFF. By Walter Goerlitz. (Translated by Brian Battershaw.) 508 Pages. Frederick A. Praeger, Inc., New York. $7.50.

BY LT COL MARSHALL H. ARMOR, JR., *Arty*

Twice within this century the extirpation of the aggressive German militarism, allegedly personified by the great General Staff, has been a war objective of Anglo-French-American allies. If that objective has been achieved, no little credit is due Reichsführer Adolph Hitler, the war lord who hated his generals.

All of the years, from the conception to the cataclysm, are spanned in Dr. Walter Goerlitz' *History of the German General Staff*, a gripping story of the men who built and led the German Army, of those who salvaged and rebuilt it after 1918, and of those who allowed it to be dragged into politics and disaster.

Even if at times Dr. Goerlitz appears to be an apologist for the generals in their failure to remove Hitler, his book is a major contribution to military history and is of particular significance today: the exaggerated specter of the German General Staff has long been a deterrent to formation of the European Army.

THE SOUTH AFRICAN WAY OF LIFE. By G. H. Calpin. 200 Pages. Columbia University Press, New York. $3.50.

BY LT COL GEOFFREY D. SOLOMON
Australian Army

Although this book, another in the series produced under the auspices of UNESCO, does not attempt to give a general solution to the difficulties facing South Africa, it does present clearly and soberly the problems that exist. In a book of this kind, one cannot expect more, and as Dr. Oscar D. Wollheim states in his study on *Education in South Africa*, "When 12 million people of four different cultural origins, speaking a dozen different languages, and on every rung of the ladder of literacy and civilization, must live together in amity, solutions are not easily found."

The symposium form that marked its predecessor is used once again. This increases the impression that, no doubt, would have emerged whatever the method of a country where differences are perhaps more important than similarities, and where paradoxically, the part sometimes appears to be considered greater than the whole.